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UNITED STATES

GEOLOGICAL SURVEY

No. 173

SYNOPSIS OF AMERICAN FOSSIL BRYOZOA.—
NICKLES AND BASSLER

WASHINGTON
GOVERNMENT PRINTING OFFICE
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UNITED STATES GEOLOGICAL SURVEY

CHARLES D. WALCOTT, DIRECTOR

A SYNOPSIS

OF

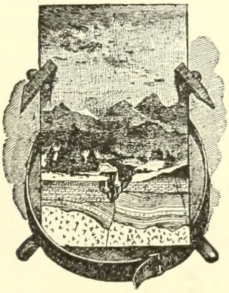
AMERICAN FOSSIL BRYOZOA

INCLUDING

BIBLIOGRAPHY AND SYNONYMY

BY

JOHN M. NICKLES AND RAY S. BASSLER



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CONTENTS.

Page.

Letter of transmittal........ 7

Introduction and acknowledgments........ 9

Explanatory notes........ 11

Classification........ 12

- Systematic position........ 12
- History of classification........ 13
- Scheme of classification of Paleozoic bryozoa........ 14
- Terminology........ 17
- Diagnoses of suborders, families, and genera........ 19
- Alphabetic list of genera showing systematic position........ 57
- Alphabetic list of invalid generic names........ 61

Distribution........ 62

- Geographic........ 62
- Geologic........ 65
- List of localities........ 68
- Table showing the occurrence of bryozoa by formations........ 73
- Lists of species........ 74
  - Chazy........ 74
  - Trenton........ 74
  - Cincinnati........ 80
  - Silurian........ 85
  - Devonian........ 91
  - Mississippian........ 101
  - Carboniferous........ 108
- Tables of genera and species........ 110
  - In the groups of the Trenton period........ 110
  - In the groups of the Cincinnati period........ 112
  - In the periods of Paleozoic time........ 115

General notes........ 121

- Value of bryozoa in stratigraphic work........ 121
- Collection and study........ 121
- Making of sections........ 122

Bibliography and index........ 125

- Chronological catalogue of papers containing descriptions and illustrations of American Paleozoic bryozoa........ 125
- Chronological catalogue of papers containing descriptions and illustrations of American Mesozoic and Tertiary bryozoa, with lists of species described therein........ 151
- Catalogue of the genera and species of American Paleozoic bryozoa, including bibliography and synonymy........ 161
- Index of specific names........ 441
- Index of authors and their papers........ 463
- List of papers treating of bryozoa........ 468
- The foregoing list classified........ 562

LETTER OF TRANSMITTAL.

Cincinnati, Ohio,
May 21, 1900.

Sir: I have the honor to submit herewith, for publication as a bulletin of the United States Geological Survey, the manuscript of a joint work by Mr. Ray S. Bassler and myself, entitled A Synopsis of American Fossil Bryozoa, including Bibliography and Synonymy.

Very respectfully,

John M. Nickles.

Hon. Charles D. Walcott,
Director United States Geological Survey.

A SYNOPSIS OF AMERICAN FOSSIL BRYOZOA.

By John M. Nickles and Ray S. Bassler.

INTRODUCTION AND ACKNOWLEDGMENTS.

So voluminous has the literature of natural history become that the workers in any special branch, and the general student as well, feel the need of compilations showing what has been done. This need, keenly felt in our study of the fossil bryozoa, compelled us to begin such a compilation some years ago. This we now place at the service of our fellow-workers with the hope that it may lighten the labors of the systematist and open the way for an enlarged use of the bryozoa in stratigraphy.

The bryozoa are generally admitted to be one of the most difficult groups of fossils. They are often of small size and can seldom be determined by the unassisted eye. Their accurate discrimination necessitates tedious study. Few have cared to give this. Because, also, great uncertainty has prevailed as to what constitutes classificatory characters, a large amount of confusion and synonymy cumbers the literature of the subject. Thus the study of the bryozoa has become doubly repellent.

The extended investigations of the structure of fossil bryozoa made by Mr. E. O. Ulrich, following in the lines pioneered by Dr. H. Alleyne Nicholson, have shown that we can not be sure of the position of any form in the scheme of classification until we have learned its internal structure by means of thin sections examined microscopically. This mode of investigation is difficult and tedious, but our studies have convinced us that a knowledge of internal characters is absolutely essential to a correct understanding of phylogeny and systematic position.

As but few authors have described the internal structure of their species, and as those who have given descriptions have not always had a clear understanding of what is essential in the appearance presented by thin sections, it is not possible to be sure of the generic placement of a large number of species. Some authors have referred species to genera to which we are certain they do not belong; but as enough has not been made known of such forms to enable us to refer them to other genera, even doubtfully, we have left the species where placed by their authors, but have followed the generic name with two interrogation points (??).

We have deemed it best to be conservative in the matter of reducing to synonyms, and only where the author himself or some very good authority or our own investigation has justified such a course have we relegated a species to synonymy. At the same time we feel sure that future studies will show that a considerable number of species given in our catalogue as valid are synonyms of species previously described. This is especially the case with the bryozoa of the Hamilton group. These have been dealt with by a number of workers, most of whom have seemed to not concern themselves very much about what others may have been doing.

Some genera which future research may prove to be bryozoan we have excluded. Such are Aulopora, Monilopora, Vermipora, Striatopora, Michelinia, Chætetes, Favosites, and Tetradium.

The catalogue gives a list, complete so far as we know, of the described species of bryozoa from American Paleozoic formations, arranged alphabetically under their genera, which are also arranged alphabetically for convenient reference. The bibliography of each species is given under its caption, thus enabling the student to easily trace the history of any particular form in the literature. The citations under the genus nearly always refer to a diagnosis; it has seemed to be of no value to record citations which do not contain some substantial contribution to the knowledge of the genus.

We have not been able to deal with American Mesozoic and Tertiary bryozoa in the same manner. Practically nothing has been done with these since the work of Gabb and Horn in 1862. But not much can be done yet, for the classification below the higher groups of recent and post-Paleozoic bryozoa is in a most chaotic condition. This systematization must be done by European writers, as America has but a comparatively feeble representation of post-Paleozoic bryozoa. The subject is difficult, but the researches of Smitt, Hincks, Jullien, and especially Waters, are laying a sure foundation upon which the classification of the future may be safely builded. As the best that can be done at present, we have given a list of all publications describing American Mesozoic and Tertiary bryozoa, with the species described in each.

As additional helps to the study of the bryozoa we have given a brief outline of the classification, with terminology and diagnoses of genera, families, and suborders; tables showing the distribution of genera and species geologically; and various notes and hints that we deemed might prove acceptable to the student.

One feature we have added which seems a little foreign to our purpose, but we believe it will be appreciated. It is a list of publications, as complete as we have been able to make it, treating of bryozoa.

This list will give a very fair idea of what has thus far been done for the bryozoa. For kindly help which has done much to make this list as full as it is, we have to thank Dr. Josua Lindahl, the accomplished Director of the Cincinnati Society of Natural History, and many workers abroad, more particularly Prof. Sidney F. Harmer, Mr. Arthur William Waters, Dr. Ed. Pergens, Prof. Hinrich Nitsche, Prof. E. Ehlers, Prof. F. A. Smitt, M. Gustave Dollfus, Inspector G. M. R. Levinsen, Mr. Robert Etheridge, jr., and Dr. A. Neviani.

It remains to acknowledge our very great indebtedness to Mr. E. O. Ulrich, of whose lifelong studies of the bryozoa, published and unpublished, carried on with a most noble integrity of purpose, often under most untoward circumstances, we have been freely permitted to avail ourselves.

To the Director of the United States Geological Survey, Hon. Charles D. Walcott, whose keen appreciation of all that tends to further geological and paleontological science has been many times proved, we are indebted for many favors.

EXPLANATORY NOTES.

It has seemed advisable to give a few brief explanatory notes.

1. In the catalogue of genera and species, valid genera and species are in black-faced type; an interrogation point following the generic name indicates that it is not certain that the species belongs to the genus under which it is placed; two interrogation points following the generic name indicate that, while we have left the species where it was referred by the author, we know that it does not belong there, but we do not know where it does belong. As a rule, we have excluded these species from the tables giving the numbers of species.

2. In giving the geologic formation we have usually adhered to commonly accepted designations, though this sometimes produces seeming ambiguity. Thus, when Trenton appears alone, followed by the locality, it denotes the group; when followed by a parenthesis including Black River or Stones River it denotes the period. Trenton in parentheses means the group. For the Trenton period Clarke and Schuchert[1] have proposed the name Mohawkian.

After the term Cincinnati (period) we have given the group in parentheses. This we have done because very few authors have given the group from which their species were derived. The recognition of these groups is comparatively recent.

The Lower Helderberg we have included with the Silurian in our table of formations. It is still an open question to which age it more properly belongs, the Devonian or the Silurian.

We have continued to use the name Upper Helderberg, though the name Ulsterian, lately proposed by Clarke and Schuchert,[1] may prove a better designation. Prof. James Hall regarded the locality at the Falls of the Ohio as of Upper Helderberg age, but we have followed Mr. E. O. Ulrich in considering this locality of Hamilton age. Future researches may prove that the Upper Helderberg and Hamilton, as now commonly understood, are to some extent synchronous.

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[1] Science, new ser., X, 1899, pp. 874-878.

To avoid ambiguity we have adopted the term Mississippian for the formations underlying the Coal Measures and overlying the Devonian, and have used the grouping of these formations given by Williams and Keyes, with some modifications.

3. In the diagnoses of suborders, families, and genera we thought it advisable to give the number of undescribed species known to us, as it would give a better idea of the number of bryozoa known from American Paleozoic strata. These undescribed species are in the collections of Mr. E. O. Ulrich and the authors.

4. In the list of publications preceding the catalogue of genera and species we have placed an asterisk before those which are of most importance to the student of the bryozoa. The dates we have given do not always agree with those on the title-pages. We have given the date of distribution in cases where we know this to be different from the date of publication.

CLASSIFICATION.

SYSTEMATIC POSITION.

The earliest investigators of the bryozoa regarded them as plants, but by the beginning of the nineteenth century there was general agreement among naturalists as to the animal nature of these organisms, often so plant-like in appearance. For a time their systematic position remained in doubt, and they were uneasily shifted from class to class. In 1830 J. V. Thompson published his discoveries, On Polyzoa, a New Animal Discovered as an Inhabitant of some Zoophites;[1] whence most British authors have applied the name Polyzoa to these organisms, speedily dignified as a class. Almost simultaneously C. G. Ehrenberg[2] separated these organisms as a group of his Phytozoa Polypi under the name Bryozoa; which name became current among Continental authors and seems now gradually superseding Thompson's name also among British writers. For a considerable time the Bryozoa, with the Brachiopoda and Ascidia, formed the "subkingdom" Molluscoidea, but the Ascidia have been removed from this assemblage, and doubts have arisen whether the points of agreement of bryozoa and brachiopoda are of fundamental importance. The determination of the exact affinities of the bryozoa remains a subject for investigations.

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[1] Zool. Researches, No. 5, pp. 89–102, pls. i–iii.

[2] Symbolæ Physicæ, seu Icones et Descriptiones Animalium Evertebratorum, 1828–1831.

HISTORY OF CLASSIFICATION.

The first serious attempt at a classification of the bryozoa was made by D'Orbigny.[1] D'Orbigny's wide acquaintance with recent and fossil bryozoa has perhaps been equaled by no subsequent writer. But the system he devised was so largely artificial and burdened with so perplexing a nomenclature that it failed to gain acceptance. The labors of Nitsche, Allman, and Busk have fixed the principal groups. To Nitsche[2] is due the division into the two groups Ectoprocta and Entoprocta, the latter containing only the two singular genera Pedicellina and Loxosoma. Allman[3] formed the orders Phylactolæmata and Gymnolæmata, the latter including most of the bryozoa and all forms capable of preservation as fossils. Busk's suborders Chilostomata, Cyclostomata, and Ctenostomata[4] have been generally accepted. To these suborders Mr. Ulrich, in 1882,[5] added the suborder Trepostomata, to include, besides uncontested bryozoa, a number of forms which had been generally regarded as corals; and Mr. G. R. Vine, in 1883,[6] added the suborder Cryptostomata.

Recently Dr. J. W. Gregory[7] has raised these suborders to the rank of orders, and for the Chilostomata proposes five suborders: the Stolonata, with the families Æteidæ, Eucratiidæ, and Chlidoniidæ; the Cellularina, with the families Cellulariidæ, Bicellariidæ, Epistomiidæ, Catenicellidæ, and Bifaxariidæ; the Athyriata, with the families Farciminariidæ, Flustridæ, Membraniporidæ, Cribrilinidæ, Microporidæ, Steganoporellidæ, and Cellariidæ; the Schizothyriata, with families Schizoporellidæ, Adeonellidæ, and Microporellidæ; and the Holothyriata, with the families Lepraliidæ, Celleporidæ, and Smittiidæ. For the Cyclostomata he proposes three suborders: the Articulata, with one family, the Crisiidæ; the Tubulata, with the families Tubuliporidæ, Entalophoridæ, Idmoneidæ, Horneridæ, Fascigeridæ, Osculiporidæ, and Theonoidæ; and the Dactylethrata, with the families Clausidæ and Reticuliporidæ.

Zittel, in his excellent Handbuch der Palæontologie (Leipzig, 1880), utilizing the labors of Nitsche, Allman, Busk, Smitt, Hincks, Reuss, Stoliczka, and others, gave probably as good a classification as could be given at that time. We have followed in the main the classification in the English edition of Zittel's Textbook of Palæontology (Macmillan & Co., London, 1896); the section of this edition relating to the bryozoa was revised and in large part rewritten by Mr. E. O. Ulrich. Departures from this classification are based mainly upon later, hitherto unpublished, studies of this author.

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[1] Pal. Franc. Terr. Crétacé, V, 1850–1.

[2] Zeitschrift für wissenschaftliche Zoologie, XX, 1869.

[3] Monograph of the Freshwater Polyzoa, 1856, p. 10.

[4] British Museum Catalogue of Marine Polyzoa, 1852.

[5] Jour. Cincinnati Soc. Nat. Hist., V, p. 151.

[6] Rept. Brit. Assoc. Adv. Sci., p. 196.

[7] Trans. Zool. Soc. London, XIII, 1893, and British Museum Catalogue of Jurassic Bryozoa, 1896.

While there is general agreement as to the suborders and higher groups, confusion reigns in the arrangement of the genera into families, more especially of the post-Paleozoic forms. This is due in large measure to the fact that the importance of the various structural features is very differently rated. Formerly most writers considered zoarial features of chiefest importance for family and generic groupings, but of late there has come substantial agreement that zoœcial features far outweigh zoarial characters for classificatory purposes. But as to the relative importance of the various zoœcial characters there is no agreement. A great deal of study is still required, especially to determine the relationship of Paleozoic to later forms, before the principles of classification applicable to this class shall be so well established that a classification can be made which will be correct phylogenetically.

OUTLINE OF CLASSIFICATION.

The subordination of the larger groupings of the bryozoa is shown in the tabular form following:

- Subkingdom MOLLUSCOIDEA.
  - Class BRYOZOA Ehrenberg.
    - Group ECTOPROCTA Nitsche.
      - Order GYMNOLAEMATA Allman.
        - Suborder I. CTENOSTOMATA Busk.
        - Suborder II. CYCLOSTOMATA Busk.
        - Suborder III. TREPOSTOMATA Ulrich.
        - Suborder IV. CRYPTOSTOMATA Vine.
        - Suborder V. CHILOSTOMATA Busk.
    - Group ENTOPROCTA Nitsche.
      - Order PEDICELLINEA Hincks.
  - Subclass RHABDOPLEURAE Gill.
    - Order PODOSTOMATA Lankester.

SCHEME OF CLASSIFICATION OF PALEOZOIC BRYOZOA.

Subkingdom MOLLUSCOIDEA.

Class BRYOZOA Ehrenberg.

Group ECTOPROCTA Nitsche.

Order GYMNOLÆMATA Allman.

Suborder CTENOSTOMATA Busk.

Family Rhopalonariidæ.

Rhopalonaria Ulrich.

Family Ascodictyonidæ Ulrich.

Ascodictyon Nicholson and Etheridge, Jun., Vinella Ulrich.

Suborder CYCLOSTOMATA Busk.

Family Diastoporidæ Busk (emend. Ulrich).

Stomatopora Bronn, Proboscina Audouin, Berenicea Lamouroux, Diastoporina Ulrich, ? Hederella Hall, ? Hernodia Hall, ? Reptaria Rolle.

Family Idmoneidæ Busk.

Crisinella Hall, Protocrisina Ulrich.

Family Entalophoridæ Reuss.

Mitoclema Ulrich, Clonopora Hall, Diploclema Ulrich, ? Cystopora Hall.

Family Phaceloporidæ Ulrich.

Phacelopora Ulrich.

Family Ceramoporidæ Ulrich.

Ceramopora Hall, Ceramoporella Ulrich, Crepipora Ulrich, Chiloporella Ulrich, Cœloclema Ulrich, Anolotichia Ulrich, Ceramophylla Ulrich, Bythotrypa Ulrich, Scenellopora Ulrich, Spatiopora Ulrich.

Family Fistuliporidæ Ulrich.

Fistulipora McCoy, Cyclotrypa Ulrich, Eridopora Ulrich, Hexagonella Waagen and Wentzel, Pinacotrypa Ulrich, Chilotrypa Ulrich, Strotopora Ulrich, Meekopora Ulrich, Lichenotrypa Ulrich, Buskopora Ulrich, Glossotrypa Hall, Selenopora Hall, Favicella Hall, Cœlocaulis Hall.

Family Botrylloporidæ.

Botryllopora Nicholson.

Suborder TREPOSTOMATA Ulrich.

Family Monticuliporidæ Nicholson (emend. Ulrich).

Monticulipora D'Orbigny, Atactoporella Ulrich, Peronopora Nicholson, Homotrypella Ulrich, Homotrypa Ulrich, Prasopora Nicholson and Etheridge, Jun., Aspidopora Ulrich, Mesotrypa Ulrich.

Family Amplexoporidæ Ulrich.

Amplexopora Ulrich, Monotrypella Ulrich, Petalotrypa Ulrich, Discotrypa Ulrich.

Family Heterotrypidæ Ulrich.

Heterotrypa Nicholson, Dekayella Ulrich, Dekayia Milne Edwards and Haime, Petigopora Ulrich, Leptotrypa Ulrich, Atactopora Ulrich.

Family Batostomellidæ Ulrich.

Batostomella Ulrich, Bythopora Miller and Dyer, Callotrypa Hall, Trematella Hall, Eridotrypa Ulrich, Stenopora Lonsdale, Anisotrypa Ulrich, Lioclema Ulrich, Lioclemella Foerste, ? Thallostigma Hall.

Family Constellariidæ Ulrich.

Constellaria Dana, Stellipora Hall, Nicholsonella Ulrich, Idiotrypa Ulrich, ? Dittopora Dybowski.

Family Trematoporidæ Ulrich.

Trematopora Hall, Batostoma Ulrich, Hemiphragma Ulrich, Stromatotrypa Ulrich, Monotrypa Nicholson, Diplotrypa Nicholson (emend. Ulrich).

Family Calloporidæ Ulrich.

Callopora Hall (emend. Ulrich), ? Calloporella Ulrich.

Suborder CRYPTOSTOMATA Vine.

Family Phylloporinidæ Ulrich.

Phylloporina Ulrich, Drymotrypa Ulrich.

Family Fenestellidæ King.

Fenestella Lonsdale, Semicoscinium Prout, Fenestrapora Hall, Isotrypa Hall, Loculipora Hall, Unitrypa Hall, Hemitrypa Phillips, Helicopora Claypole, Archimedes Owen, Polypora McCoy, Lyropora Hall, Fenestralia Prout, Thamniscus King, Phyllopora King, Reteporidra, Reteporina D'Orbigny, Ptiloporella Hall, Ptiloporina Hall.

Family Acanthocladiidæ Zittel.

Pinnatopora Vine, Acanthocladia King, Septopora Prout, Synocladia King, Ptilopora McCoy, Ichthyorachis McCoy, Diploporaria, ? Ramipora Toula.

Family Sphragioporidæ Ulrich.

Sphragiopora Ulrich.

Family Arthrostylidæ Ulrich.

Arthrostylus Ulrich, Helopora Hall, Arthroclema Billings, Sceptropora Ulrich, Nematopora Ulrich.

Family Rhabdomesontidæ Vine.

Rhombopora Meek, Rhabdomeson Young and Young, Cœloconus Ulrich, Bactropora Hall, Orthopora Hall, Acanthoclema Hall, Nemataxis Hall, ? Tropidopora Hall, ? Streblotrypa Ulrich, ? Hyphasmopora Etheridge, Jun.

Family Chainodictyonidæ.

Chainodictyon Foerste.

Family Ptilodictyonidæ Ulrich.

Ptilodictya Lonsdale, Escharopora Hall, Clathropora Hall, Phænopora Hall, Arthropora Ulrich, Graptodictya Ulrich, Stictoporina Hall.

Family Stictoporellidæ.

Stictoporella Ulrich, Ptilotrypa Ulrich, Intrapora Hall, Coscinella Hall, Tæniodictya Ulrich, Stictopora Hall, Heliotrypa Ulrich.

Family Rhinidictyonidæ Ulrich.

Rhinidictya Ulrich, Eurydictya Ulrich, Pachydictya Ulrich, Phyllodictya Ulrich, Euspilopora Ulrich, Dicranopora Ulrich, Goniotrypa Ulrich, Trigonodictya Ulrich.

Family Cystodictyonidæ Ulrich.

Cystodictya Ulrich, Dichotrypa Ulrich, Coscinium Keyserling, Tæniopora Nicholson, Thamnotrypa Hall, Semiopora Hall, Ptilocella Simpson, Acrogenia Hall, Prismopora Hall, Scalaripora Hall, Glyptopora Ulrich, Phractopora Hall, Ceramella Hall, Evactinopora Meek and Worthen, ? Goniocladia Etheridge, Jun.

Family Actinotrypidæ Ulrich.

Actinotrypa Ulrich.

Family Cycloporidæ.

Cyclopora Prout, Cycloporella Ulrich, Proutella Ulrich, Worthenopora Ulrich.

Family Rhinoporidæ Ulrich.

Rhinopora Hall, Diamesopora Hall, Lichenalia Hall, Stictotrypa Ulrich.

Suborder CHILOSTOMATA Busk.

Family Palescharidæ Ulrich.

Paleschara Hall.

TERMINOLOGY.

ZOARIUM (polyzoarium, cœnœcium).—The composite structure formed by repeated gemmation. The form which results is very variable, though usually fairly constant for each species. Gemmation in a plane produces *unilaminar* sheets which are often *parasitic* (incrusting) upon other organisms, but are sometimes free; in the latter case the protecting covering on the under side is the *epitheca*. Hollow branches lined with an epitheca are a special form of this mode of gemmation. Two unilaminar sheets growing erect, back to back, form a *bilaminar* or *bifoliate* expansion or *frond.* The epithecæ of the two layers of zoœcia thus brought together form a *mesotheca* (mesial or medial laminæ). The small pores seen in the mesotheca, or between the walls of adjoining zoœcia of certain species when thin sections of well-preserved specimens are examined under the microscope, have received the name *median tubuli* (Ulrich).

When gemmation takes places on any side of the zoœcium, *massy* forms result, which may be hemispherical, globular, or discoidal in shape. Gemmation in a particular direction will produce *ramose* or *dendroid* forms.

Among the Fenestellidæ and related families a network is formed. The openings in the network are *fenestrules;* bars connecting the branches are *dissepiments.* The surface upon which the zoœcia open is the *obverse*, the other the *reverse.*

MONTICULES and MACULÆ.—It is quite common, especially in the Trepostomata, for some clusters of zoœcia to outstrip the surrounding zoœcia in growth and tower above them. The rounded elevations thus formed are termed *monticules.* Sometimes the clusters consist of mesopores instead of zoœcia, surrounded by a zone of larger zoœcia. In the latter case the clusters of mesopores may not be elevated above the general level, but may be even depressed below it. Such clusters are called *maculæ.*

ZOŒCIUM (cell).—The cavity with its bounding wall inhabited by the animal. The wall is constructed of laminated tissue. In particularly well-preserved specimens, thin sections reveal very small tubular passages penetrating the walls of adjoining zoœcia. To these Ulrich has applied the term *communication pores.*

In some forms, especially among the Trepostomata, the zoœcia have the form of elongated tubes, which are crossed by partitions termed *diaphragms.* The opening upon the surface of the zoœcium or of the vestibule among the Cryptostomata is the *aperture.* It is often closed by a *zoœcial cover* (closure or operculum).

One side of the zoœcial cavity in some of the Trepostomata is lined with a series of superimposed vesicles, the *cystiphragms* (cystoid diaphragms); their purpose or use is unknown.

Among the Cryptostomata plates frequently project from the walls into the cavity; that upon the posterior wall of the zoœcium is the *superior hemiseptum* (Ulrich), that upon the anterior wall is the *inferior hemiseptum.* The opening of the zoœcium among the Cryptostomata is the *orifice;* the tubular shaft which is left above the orifice as the surface of the zoarium is thickened by strengthening or protective tissue in the *vestibule.*

INTERSPACE.—The part of the surface of the zoarium between the apertures of the zoœcia.

MESOPORES (interstitial cells).—Tubular structures found between the zoœcia; they are commonly angular or irregular in outline in cross section.

ACANTHOPORES (spiniform corallites, spiniform tubuli).—Small cylindrical tubes usually situated at the angles of junction of adjoining zoœcia, forming spine-like projections upon the surface.

VESICULAR TISSUE.—In a number of forms the space between the zoœcia is occupied by tissue composed of irregularly superimposed vesicles. This probably served to give strength to the zoarium and to protect the zoœcia.

DIAGNOSES OF SUBORDERS, FAMILIES, AND GENERA.

Class BRYOZOA Ehrenberg.

Order GYMNOLÆMATA Allman.

Suborder CTENOSTOMATA Busk.

Zoœcia usually isolated and developed by budding from the internodes of a distinct tubular stolon or stem. Orifice terminal, with an operculum of setæ. Zoarium horny or membranaceous. Marsupia wanting.

Family RHOPALONARIIDÆ.

RHOPALONARIA Ulrich.

Fusiform segments (? stolons constricted fusiformly) arranged in a more or less pinnate manner, impressed or almost embedded in the host. Zoœcia unknown.

Genotype and only described species: *Rhopalonaria venosa* Ulrich. Range, Ordovician–Devonian. A species very similar to the genotype occurs in the Clinton, and another undescribed species is found in the Hamilton.

Family ASCODICTYONIDÆ Ulrich.

ASCODICTYON Nicholson and Etheridge, Jun.

Zoarium parasitic, of thread-like ramifying stolons, with bulbous enlargements, arranged irregularly or in stelliform clusters; surface minutely punctate. Zoœcia unknown.

Genotype: *Ascodictyon stellatum* Nicholson and Etheridge, Jun. Devonian. Two described species; also several undescribed species from the Chester group.

VINELLA Ulrich.

Zoarium parasitic, consisting of exceedingly slender, ramifying, thread-like, tubular stolons, arranged more or less distinctly in a radial manner. Surface of stolons sometimes faintly lined longitudinally and with a row of widely separated small pores along the top. Zoœcia unknown.

Genotype: *Vinella repens* Ulrich. Three described and five new species, ranging from Ordovician to Mississippian.

Suborder CYCLOSTOMATA Busk.

Zoœcia simple, tubular; walls thin, minutely porous; apertures plain, inoperculate, commonly raised; interspaces with or without strengthening tissue; marsupia and appendicular organs wanting; oœcium a large modified cell or an inflation of the zoarial surface.

Family DIASTOPORIDÆ Busk (emend. Ulrich).

Zoarium adnate or erect, the latter unilaminate, bilaminate, or forming hollow stems; zoœcia generally tubular; apertures salient, usually narrower than the width of the zoœcium, never clustered; interstitial cells wanting; ovicells mere inflations of the surface, with one or more openings.

STOMATOPORA Bronn (ALECTO Lamouroux, not Leach).

Zoarium adnate, branching dichotomously; zoœcia subtubular or subpyriform, arranged typically in a single linear series; apertures subterminal.

Genotype: *Stomatopora dichotoma* Lamouroux. Range, Ordovician–Devonian; Jurassic–Recent. Nine described and eight new Paleozoic species, mostly from the Ordovician.

PROBOSCINA Audouin.

Zoarium adnate, multiserial, rarely widening into a sheet; zoœcia tubular; apertures subterminal.

Genotype: *Proboscina boryi* Audouin. Range, Ordovician–Devonian; Jurassic–Recent. Five described and two new species in American Paleozoic strata, mostly Ordovician.

BERENICEA Lamouroux (DIASTOPORA of authors, not Lamouroux, SAGENELLA Hall, ROSACILLA Roemer, DIASTOPORELLA Vine).

Zoarium adnate, forming thin, discoid, flabellate, or irregular crusts; zoœcia tubular, arranged in irregularly alternating lines.

Genotype: *Berenicea diluviana* Lamouroux. Range, Ordovician, Silurian, Jurassic–Recent. Six described and several new species in American Paleozoic strata, mainly Ordovician.

DIASTOPORINA Ulrich.

Zoarium bifoliate; zoœcia subtubular, prostrate, immersed; apertures subcircular, not prominent; zoarial surface between apertures finely puncto-striate.

Genotype and only known species: *Diastoporina flabellata* Ulrich. Ordovician.

The systematic position of the following genera, placed provisionally in this family, is uncertain.

HEDERELLA Hall (NICHOLSONIA Davis).

Zoarium adnate, consisting of a tubular axis, from which the zoœcia bend off alternately to left and right; zoœcia annulated and striated transversely and finely striated longitudinally; apertures terminal, equaling in width the diameter of the zoœcia.

Genotype: *Alecto canadensis* Nicholson. Devonian. Six species.

HERNODIA Hall.

Zoarium adnate, consisting of linear series of elongated, annulated zoœcia, budded from the sides of preceding zoœcia; apertures terminal, equaling in width the diameter of the zoœcia.

Genotype and only known species: *Hernodia humifusa* Hall. Devonian.

REPTARIA Rolle (PTILIONELLA Hall).

Zoarium adnate, consisting of cylindrical, annulated zoœcia in contact but not coalescing along their sides, and proceeding in the plane of their host laterally outward from a median line and then upward; apertures terminal, equaling in width the diameter of the zoœcia.

Genotype: *Reptaria stolonifera* Rolle. Devonian. Two species

Family IDMONEIDÆ Busk.

Zoarium of free or adnate subcylindrical or subprismatic branches; zoœcial apertures rounded, more or less elevated, usually arranged in transverse rows on two faces of branches, these two faces sometimes being confluent; dorsal surface of branches without zoœcia; small tubular pores may open on either surface of the branches, but more frequently on the dorsal.

CRISINELLA Hall.

Zoarium ramose, solid; celluliferous on one face; apertures arranged in rows, alternately arranged, ascending obliquely from the middle to the margins of the branch; peristomes prominent.

Genotype and only known species: *Crisina ? scrobiculata* Hall. Devonian.

PROTOCRISINA Ulrich.

Zoarium consisting of narrow, bifurcating branches, celluliferous on one face only; zoœcia subtubular, with prominent, circular apertures arranged in intersecting diagonal series; on both faces small pores irregularly distributed.

Genotype and only known species: *Protocrisina exigua* Ulrich. Ordovician.

Family **ENTALOPHORIDÆ** Reuss.

Zoarium ramose, branches free, subcylindrical, with rounded and more or less prominently exserted zoœcial apertures opening on all sides of the branches.

MITOCLEMA Ulrich.

Zoarium ramose, cylindrical, consisting of long tubular zoœcia, which are thin-walled and prismatic in the axial region, diverge gradually from the center, and bend abruptly outward near the surface, often becoming free and much exserted; apertures terminal, circular, usually arranged in regular transverse or subspiral series.

Genotype: *Mitoclema cinctosum* Ulrich. Ordovician. Two described and one new species.

CLONOPORA Hall.

Zoarium ramose; branches cylindrical, consisting of elongate tubular zoœcia, cohering for part of their length, then bending outward and becoming free; apertures terminal, not contracted, arranged in rings or spirally around the branch.

Genotype: *Clonopora semireducta* Hall. Devonian. Three species.

DIPLOCLEMA Ulrich.

Zoarium dendroid, branches slightly compressed, spreading in the same plane; zoœcia tubular, diverging from a wavy mesial mesotheca; apertures circular; prominent.

Genotype: *Diploclema trentonense* Ulrich. Ordovician, Silurian. Two species.

CYSTOPORA Hall.

Zoarium cylindrical, consisting of tubular, ampullate zoœcia, cohering for the greater part of their length; distally the zoœcia bend outward, becoming free and much contracted; apertures terminal.

Genotype and only known species: *Cystopora geniculata* Hall. Devonian.

Family **PHACELOPORIDÆ** Ulrich.

PHACELOPORA Ulrich.

Zoarium articulated; zoœcia conical, two or more aggregated to form cone-shaped bundles; apertures subterminal, circular, and slightly contracted.

Genotype and only described valid species: *Phacelopora pertenuis* Ulrich. Ordovician. One new species in the Clinton group.

Family CERAMOPORIDÆ Ulrich.

Zoarium variable; maculæ or clusters of mesopores or of zoœcia larger than usual at regular intervals; zoœcia tubular, at first prostrate, continue obliquely or directly to the surface, often with a few diaphragms; apertures commonly oblique, provided with a lunarium; mesopores generally present, always irregular and usually without diaphragms; walls minutely porous, formed of intimately connected and irregularly laminated tissue.

CERAMOPORA Hall.

Zoarium discoidal, free or attached by the center of the base; under surface with one or more layers of small, irregular cells; zoœcia radiating out on the upper surface from a depressed center; apertures oblique, imbricating; mesopores short, irregular, decreasing in number from center to margin.

Genotype: *Ceramopora imbricata* Hall. Silurian.

CERAMOPORELLA Ulrich.

Zoarium of incrusting layers, which by superposition may form masses; zoœcia short, tubular with thin walls; apertures oval, oblique, the lunarium forming a hood; mesopores abundant, often completely encircling the zoœcia.

Genotype: *Ceramoporella distincta* Ulrich. Ordovician. Nine described and twenty new species.

CREPIPORA Ulrich.

Zoarium incrusting, lamellate or massive, or, in one species, forming hollow branches; zoœcia long, tubular, thin-walled, with diaphragms; apertures angular or subpyriform, lunarium not overarching, its ends usually projecting; mesopores generally restricted to the maculæ, which are elevated or depressed.

Genotype: *Crepipora simulans* Ulrich. Ordovician. Eight described and six new species.

CHILOPORELLA Ulrich.

Zoarium forming parasitic sheets, from which rise flabellate fronds or compressed branches; zoœcial tubes long, thin-walled, irregular in shape in immature region, near the surface walls much thickened, diaphragms rarely developed; apertures ovate, lunarium conspicuously elevated; mesopores numerous.

Genotype and only described species: *Fistulipora ? flabellata* Ulrich = *Ceramopora nicholsoni* James. Ordovician.

CŒLOCLEMA Ulrich.

Zoarium forming hollow branches, lined internally with a striated epitheca; zoœcia as in Ceramoporella, but with thicker walls.

Genotype: *Diamesopora vaupeli* Ulrich = *Ceramopora alternata* James. Ordovician. Four described and three new species.

ANOLOTICHIA Ulrich.

Zoarium ramose, digitate, laminate, or incrusting; zoœcial tubes long, subpolygonal, intersected by remote diaphragms; lunarium elevated at the surface, traversed by two to six minute, vertical, closely tabulated tubes; mesopores sparingly developed.

Genotype: *Anolotichia ponderosa* Ulrich. Ordovician. Two described and three new species.

CERAMOPHYLLA Ulrich.

Zoarium erect, bifoliate, the two layers grown together back to back; in other respects like Ceramoporella and Cœloclema.

Genotype and only known species: *Ceramophylla frondosa* Ulrich. Ordovician.

BYTHOTRYPA Ulrich.

Zoarium massive or lamellate; zoœcial tubes long, intersected by thin diaphragms; apertures subovate, nearly direct, lunarium large, well-raised; mesopores numerous, open at the surface, forming internally a very loose vesicular tissue.

Genotype: *Fistulipora ? laxata* Ulrich. Ordovician. Two species.

SCENELLOPORA Ulrich.

Zoarium simple, pedunculate, under surface epithecated; upper surface slightly concave and celluliferous; zoœcial apertures occupy the summits of low ridges radiating from the center.

Genotype and only known species: *Scenellopora radiata* Ulrich. Ordovician.

SPATIOPORA Ulrich.

Zoarium forming thin crusts, usually on Orthoceras; zoœcia very short, nearly direct; apertures irregular, with blunt spines at the angles, no lunarium developed; elevated, elongated maculæ usually a conspicuous feature.

Genotype: *Spatiopora aspera* Ulrich. Ordovician. Ten described and seven new species.

Family FISTULIPORIDÆ Ulrich.

Zoarium massive, lamellate or ramose, showing on the surface at irregular intervals maculæ or monticules composed of clusters of vesicles and of zoœcia slightly larger than the average; lunarium generally well developed, sometimes wanting; zoœcial tubes cylindrical or somewhat compressed, thin-walled, with diaphragms; walls minutely porous; apertures usually direct, closed at times by perforated covers; vesicular tissue occupies the interzoœcial space.

FISTULIPORA McCoy (LICHENALIA Hall, in part, DIDYMOPORA Ulrich, DYBOWSKIA and DYBOWSKIELLA Waagen and Wentzel, FISTULIPORELLA Simpson).

Zoarium massive, lamellate, ramose, parasitic or free; under surface with a wrinkled epitheca; zoœcia cylindrical or somewhat compressed, direct or almost so, thin-walled until near the surface, and provided usually with a few diaphragms, and encircled by one or more series of vesicles; apertures subradially arranged about the maculæ, ovoid, subtriangular or pyriform, the lunarium more or less strongly developed; surface between apertures smooth or granular.

Genotype: *Fistulipora minor* McCoy = *Calamopora incrustans* Phillips. Range, Silurian–Carboniferous. Sixty-two described and a considerable number of new species.

CYCLOTRYPA Ulrich.

Like Fistulipora, but the lunarium obsolete and the zoœcial tubes circular in cross section.

Genotype: *Fistulipora communis* Ulrich. Devonian. Two species. Future work may disclose new species and show that species now referred elsewhere belong here.

ERIDOPORA Ulrich (PILEOTRYPA Hall).

Zoarium a thin, parasitic sheet; apertures oblique, subtriangular or ovoid; lunarium very prominent, overarching.

Genotype: *Eridopora macrostoma* Ulrich. Devonian, Mississippian. Four species described and several awaiting description.

HEXAGONELLA Waagen and Wentzel.

Zoarium as in Fistulipora, but the surface is marked off into generally hexagonal spaces, which are divided from each other by more or less elevated ridges, and usually have a macula in the center of the inclosed space.

Genotype: *Hexagonella ramosa* Waagen and Wentzel. From the Carboniferous of India. Two undescribed species from the Hamilton and Warsaw.

PINACOTRYPA Ulrich (FISTULIPORINA Simpson, FISTULICELLA Simpson).

Zoarium usually a thin contorted expansion, with a wrinkled epitheca on the basal surface; zoœcia thin-walled, with a few diaphragms;

interspaces wide, occupied by a single series of large angular mesopores with numerous diaphragms and never presenting the appearance of vesicular tissue; apertures subcircular, with a well-developed granose peristome, but no lunarium.

Genotype: *Fistulipora elegans* Rominger. Devonian.

CHILOTRYPA Ulrich.

Zoarium small, ramose, with a narrow, irregularly contracting and expanding axial tube; diaphragms few or absent; apertures elliptical, oblique, the lower margin thickened and elevated; interstitial vesicles commonly filled by a dense calcareous deposit near the surface.

Genotype: *Chilotrypa hispida* Ulrich. Range, Silurian–Mississippian. Eight described and five new species.

STROTOPORA Ulrich.

Zoarium ramose, with irregular branches. Like Fistulipora, but the surface presents distributed among the apertures large, abruptly spreading cells (regarded as broken ovicells); when perfectly preserved these appear as strongly convex elevations with a small opening on one side.

Genotype: *Strotopora foveolata* Ulrich. Devonian, Mississippian. Three species.

MEEKOPORA Ulrich.

Zoarium bifoliate, sometimes branching; the mesotheca thin and flexuous; zoœcia tubular, proceeding in a gentle curve from the mesotheca and opening somewhat obliquely upon the surface and provided with numerous, often recurved, diaphragms; apertures oblique, all pointing distally; lunarium, when present, not very prominent; rather large ovicells developed, showing at the surface as a convex space with a small apical opening.

Genotype: *Meekopora eximia* Ulrich. Range, Silurian–Carboniferous. Six described and three new species.

LICHENOTRYPA Ulrich.

Zoarium thin, incrusting; in its first stages like Fistulipora; as it matures, large spines and thin walls are thrown up about the apertures; numerous subangular vesicular openings interspersed among the apertures and scarcely distinguishable from them.

Genotype and only known species: *Lichenotrypa cavernosa* Ulrich = *Lichenalia longispina* Hall. Devonian.

BUSKOPORA Ulrich (ODONTOTRYPA Hall).

Like Fistulipora, but lunarium remarkably developed, projecting as a strong, bidenticulate process nearly half way across the aperture.

Genotype: *Buskopora dentata* Ulrich. Devonian. Four species.

GLOSSOTRYPA Hall.

Zoarium tubular, cylindrical, hollow; diameter of tube 2 mm.; thickness of zoarium 0.40 mm. Cells tubular, with frequent narrow projections (semidiaphragms) from the cell walls extending partially across the tube; two pseudosepta on one side; cell apertures paliform, very closely disposed, frequently in diagonally intersecting rows, the surface presenting a reticulated appearance; apertures with denticulated lunarium; interapertural space elevated, forming ridges; frequently a prominent node at the intersection of the ridges, sometimes a depression or pit; surface with monticules which are laterally in contact, giving to the frond an annulated appearance; intercellular space vesiculose.[1]

We interpret the foregoing description to mean that the genus is like *Buskopora*, save that the lunarium is developed interruptedly in the zoœcial tubes.

Genotype and only known species: *Lichenalia paliformis* Hall. Devonian.

SELENOPORA Hall.

Zoarium incrusting; surface with circular maculæ surrounded by large apertures; zoœcia tubular, oblique, surrounded by vesicular tissue; apertures subcircular, with overarching lunarium and situated in polygonal, vestibular areas formed by coalescing ridges traversing the interspaces.

Genotype: *Lichenalia circincta* Hall. Devonian. Two species.

FAVICELLA Hall (FISTULIPORIDRA Simpson).

Zoarium lamellate, free or incrusting; surface with monticules surrounded by slightly larger apertures; zoœcia tubular, cylindrical, at first prostrate and thin-walled, then bending rather abruptly and proceeding almost direct to the surface, surrounded by regularly superposed vesicles having the appearance of tabulated mesopores; apertures circular, with equally elevated peristome, but no lunarium, situated in polygonal vestibular areas formed by coalescing angular ridges traversing the interspaces; vestibular area surrounding the apertures occupied by minute angular pits.

Genotype: *Thallostigma inclusa* Hall. Devonian. Two species.

COELOCAULIS Hall.

Zoarium ramose, hollow, inner surface a thin epitheca with transverse wrinkles, and fine longitudinal striations; cells tubular, arising from the epitheca and parallel with it for a short distance, then turning abruptly outward; apertures circular or oval, sometimes irregularly disposed, at other times in a more or less regular quincunx order; peristomes thin, distinctly and equally elevated, usually smooth, but sometimes with numerous nodes or spinules; intercellular space occupied by irregularly disposed vesicles, or by regularly superimposed vesicles, resembling tabulate mesopores; interapertural space occupied by minute angular pits.[2]

Genotype: *Callopora venusta* Hall. Silurian, Devonian. Three species.

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[1] Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 562.

[2] Ibid., p. 554.

Family BOTRYLLOPORIDÆ.

BOTRYLLOPORA Nicholson.

Zoarium of small, circular, parasitic disks which commonly coalesce, developing along the line of coalescence unusually large vesicles; surface marked by ridges radiating from the depressed center and increasing in number by bifurcation toward the margin; zoœcial tubes occupying the ridges, traversed by occasional diaphragms; depressed space between ridges occupied by vesicles, presenting a solid interspace; apertures in two rows on the ridges, circular or oval, with no lunarium.

Genotype and only known species: *Botryllopora socialis* Nicholson. Devonian.

Suborder TREPOSTOMATA Ulrich.

Zoœcia prismatic or cylindrical, coherent tubes clearly separable into two regions, an axial or immature, in which the diaphragms are remote and the walls thin and prismatic, and a thickened peripheral or mature, in which the walls are thickened and otherwise changed, diaphragms are more abundant, and accessory features, such as mesopores and acanthopores, are often developed; zoœcial covers, with a small central orifice, present at times, though probably not developed in all the families; monticules or maculæ a characteristic feature of the surface.

Family MONTICULIPORIDÆ Nicholson (emend. Ulrich).

Zoarium variable; zoœcia with cystiphragms in the mature region always; apertures polygonal, rounded or irregularly petaloid; mesopores generally present, angular, with numerous diaphragms; acanthopores abundant, usually small.

MONTICULIPORA D'Orbigny.

Zoarium massy, lobate or lamellate, incrusting or free; monticules usually present; zoœcia prismatic, usually thin-walled, with cystiphragms both in mature and immature regions; apertures polygonal; mesopores few or wanting; acanthopores small, generally numerous.

Genotype: *Monticulipora mammulata* D'Orbigny. Ordovician, ? Devonian. Sixteen described and sixteen new species.

ATACTOPORELLA Ulrich.

Zoarium generally incrusting, sometimes lobate or subramose; zoœcia with very thin, inflected walls; apertures irregularly petaloid; mesopores numerous, frequently isolating the zoœcia, largely filled by a secondary deposit; acanthopores very numerous.

Genotype: *Atactoporella typicalis* Ulrich. Ordovician. Eleven described and three new species.

PERONOPORA Nicholson.

Zoarium bifoliate, through branching of the fronds often forming convoluted masses; surface smooth, usually with maculæ; zoœcia with rather thick walls, ring-like in transverse section, not inflected by the acanthopores; cystiphragms abundant; apertures circular or subpolygonal; mesopores and acanthopores variable in number.

Genotype: *Monticulipora frondosa* Nicholson (not D'Orbigny) = *Chætetes decipiens* Rominger. Ordovician. Two described and two new species.

HOMOTRYPELLA Ulrich.

Zoarium irregularly ramose or laminar; surface smooth, with small maculæ; zoœcia rather thin-walled, cystiphragms usually confined to the earlier part of the mature region and never present in the axial region; apertures subcircular, sometimes faintly petaloid; mesopores abundant, more or less completely separating the zoœcia; acanthopores numerous.

Genotype: *Homotrypella instabilis* Ulrich. Ordovician, Silurian. Eight described and five new species.

HOMOTRYPA Ulrich.

Zoarium frondescent or ramose; maculæ or monticules of larger cell apertures a characteristic feature; apertures often oblique; zoœcia with very thin or finely crenulated walls and remote diaphragms in immature region and cystiphragms, isolated or in series, confined to mature region; mesopores few, in clusters; acanthopores generally developed.

Genotype: *Homotrypa curvata* Ulrich. Ordovician, Silurian. Eighteen described and thirty new species.

PRASOPORA Nicholson and Etheridge, Jun.

Zoarium massy, usually free, with wrinkled epitheca on the under surface; zoœcia prismatic or cylindrical, thin-walled, with cystiphragms, and generally surrounded by angular mesopores; acanthopores sometimes present, but rarely numerous or strong; diaphragms crowded in mesopores.

Genotype: *Prasopora grayæ* Nicholson and Etheridge, Jun. Ordovician. Fourteen described and six new species.

ASPIDOPORA Ulrich.

Zoarium a thin expansion, sometimes of superposed layers, usually free, with epitheca on under side; typically composed, according to age, of from one to many subequal parts, each gently convex, with the zoœcia diminishing in size from center to margin; diaphragms wanting; cystiphragms few in the zoœcia; mesopores numerous, with close diaphragms; acanthopores usually present, always small.

Genotype: *Aspidopora areolata* Ulrich. Ordovician, Silurian. Eight described and four new species.

MESOTRYPA Ulrich.

Zoarium hemispheric, conical, or discoidal, generally free, with an epitheca on the under surface; zoœcia prismatic or cylindrical, with oblique and sometimes funnel-shaped diaphragms, which are probably modified cystiphragms; zoœcia more or less separated by angular mesopores, which become smaller with age, and are intersected by numerous diaphragms; acanthopores generally present, sometimes of large size.

Genotype: *Diplotrypa infida* Ulrich. Ordovician, Silurian. Ten described and seven new species.

Family **AMPLEXOPORIDÆ** Ulrich.

Zoarium usually ramose or discoidal, rarely bifoliate; zoœcia simple, prismatic tubes, with a well-marked divisional line (seen in tangential sections as a fine black line) between adjoining tubes; diaphragms present; mesopores practically absent, but small abortive cells sometimes occur among the larger ones in the monticules; acanthopores generally abundant, but may be wanting.

AMPLEXOPORA Ulrich.

Zoarium ramose, discoidal, or massy; zoœcia prismatic, with diaphragms; acanthopores always present, variable in size and number.

Genotype: *Amplexopora cingulata* Ulrich. Ordovician. Eight described and four new species.

MONOTRYPELLA Ulrich.

Like Amplexopora, but distinguished by the absence of acanthopores.

Genotype: *Monotrypella æqualis* Ulrich. Range, Ordovician–Devonian. Nine species.

PETALOTRYPA Ulrich.

Zoarium bifoliate, of irregular compressed branches or simple fronds; zoœcia prismatic, arising from a strongly flexuous mesotheca; apertures subcircular or polygonal; mesopore-like interspaces that do not differ in their tabulation from the zoœcia may occur; very small acanthopores (?) occupy many of the angles of junction.

Genotype: *Petalotrypa compressa* Ulrich. Devonian. Two species.

DISCOTRYPA Ulrich.

Zoarium a thin, free, or parasitic circular expansion; surface smooth, or with low, broad monticules; zoœcia thin-walled, direct; apertures hexagonal or rhomboidal, very regular in their arrangement, decreasing in size from the centers of the monticules outward; neither mesopores nor acanthopores present.

Genotype: *Chætetes elegans* Ulrich. Ordovician, Devonian. Two species.

Family HETEROTRYPIDÆ Ulrich.

Zoarium frondescent, ramose, incrusting, or massy; zoœcia polygonal, with moderately thin walls and diaphragms; walls of adjoining zoœcia coalescent; mesopores often present; acanthopores occur, sometimes of large size.

HETEROTRYPA Nicholson.

Zoarium erect, frondescent, or ramose; zoœcia with numerous diaphragms; acanthopores small, of one kind; mesopores variable in number, generally abundant, sometimes wanting.

Genotype: *Monticulipora frondosa* D'Orbigny. Ordovician, ? Devonian. Eleven described and four new species.

DEKAYELLA Ulrich.

Zoarium ramose; zoœcia with numerous diaphragms; two sets of acanthopores, large snd small; mesopores variable in number, generally numerous.

Genotype: *Dekayella obscura* Ulrich. Ordovician. Nine described and one new species.

DEKAYIA Milne-Edwards and Haime.

Zoarium erect, ramose; zoœcia with few diaphragms; acanthopores usualiy large; mesopores few, or wanting.

Genotype: *Dekayia aspera* Milne-Edwards and Haime. Ordovician, ? Devonian. Six species.

PETIGOPORA Ulrich.

Zoarium forming small, circular, incrusting patches; zoœcia direct, with few or no diaphragms; acanthopores rather large, of one kind only; mesopores wanting.

Genotype: *Petigopora gregaria* Ulrich. Ordovician. Four described and one new species.

LEPTOTRYPA Ulrich.

Zoarium incrusting, often assuming cylindrical, discoidal, or other forms; zoœcial tubes polygonal, with thin walls, and few or no diaphragms; acanthopores very small, never abundant; no mesopores.

Genotype: *Leptotrypa minima* Ulrich. Ordovician, ? Silurian, ? Devonian. Sixteen described and eight new species.

ATACTOPORA Ulrich.

Zoarium forming thin, parasitic expansions, usually on species of Orthoceras; zoœcia direct, with few or no diaphragms; surface with elevated, commonly elongated, subsolid monticules; acanthopores small, very numerous, inflecting the walls, giving the apertures an indented or petaloid aspect.

Genotype: *Atactopora hirsuta* Ulrich. Ordovician. Two described and two new species.

ORBIPORA Eichwald (ORBITULITES Eichwald).

Family BATOSTOMELLIDÆ Ulrich.

Zoarium usually ramose; zoœcia with thick walls in the mature region, appearing here to be fused; diaphragms in the peripheral region often centrally perforated; acanthopores and mesopores usually present, the latter small and sometimes moniliform in shape.

BATOSTOMELLA Ulrich (GEINITZELLA Waagen and Wentzel).

Zoarium ramose, branches slender; zoœcia with few diaphragms; apertures of zoœcia small, circular or oval; interspaces rounded or canaliculate, spinulose, the acanthopores small and usually very numerous; mesopores small, with subcircular openings.

Genotype: *Batostomella spinulosa* Ulrich. Range, Silurian–Permian. Six species.

BYTHOPORA Miller and Dyer.

Zoarium ramose, branches usually slender, sometimes of considerable size; zoœcia practically without diaphragms; apertures oblique, narrowing above; interspaces canaliculate; mesopores few, acanthopores comparatively strong, rarely more than one to each zoœcium, sometimes wanting.

Genotype: *Bythopora fruticosa* Miller and Dyer = *Helopora dendrina* James. Range, Ordovician–Devonian. Ten described and five new species.

CALLOTRYPA Hall.

Zoarium ramose; apertures oval, with equally elevated peristomes and with no definite arrangement; interspaces showing the openings of the numerous mesopores by which the zoœcia are surrounded; acanthopores present.

Genotype: *Callopora macropora* Hall. Silurian, Devonian. Ten species.

TREMATELLA Hall.

Zoarium ramose; more or less conspicuously annulated; zoœcia oblique, with a few diaphragms and walls much thickened in the mature region; apertures arranged in a somewhat quincunx order, interspaces ridged, forming polygonal areas; acanthopores sometimes present.

Genotype: *Trematopora annulata* Hall. Devonian. Five species.

ERIDOTRYPA Ulrich.

Zoarium ramose, branches slender; zoœcia more or less oblique, thick-walled, and intersected by diaphragms, which are most numerous and most closely set in the earlier portion of the short mature region; mesopores sometimes numerous, sometimes few, with closely set diaphragms; acanthopores small, few, or wanting.

Genotype: *Eridotrypa mutabilis* Ulrich. Range, Ordovician–Devonian. Ten described and four new species.

STENOPORA Lonsdale (TUBULICLIDIA Lonsdale, TABULIPORA Young).

Zoarium ramose, sublobate, massy, laminar, or parasitic; surface smooth or with monticules; walls of zoœcia thickened periodically in the mature region; diaphragms sometimes very few, but in most American species abundant in the mature region and perforated centrally; mesopores never very numerous, irregularly distributed; large acanthopores at the junction angles.

Genotype: *Stenopora tasmaniensis* Lonsdale. Mississippian, Carboniferous. Seventeen described and three new species.

ANISOTRYPA Ulrich.

Zoarium ramose, branches sometimes hollow and lined by an epitheca; divisional line between adjoining zoœcia (as seen in sections) sharply defined, periodical swelling of walls more or less marked; diaphragms centrally perforated, usually numerous; interspaces generally ridge-like; neither acanthopores nor mesopores.

Genotype: *Anisotrypa symmetrica* Ulrich. Mississippian. Four species.

LIOCLEMA Ulrich.

Zoarium ramose, lamellar, subglobose or incrusting; surface frequently exhibiting distinct monticules or maculæ; zoœcia with subcircular or irregularly petaloid apertures, separated by abundant angular mesopores, which in some species are open at the surface, in others closed; diaphragms few in the zoœcia, abundant, sometimes crowded in the mesopores; acanthopores numerous and strong in the typical species, small and inconspicuous in others.

Genotype: *Callopora punctata* Hall. Range, Silurian–Mississippian. Twenty-nine described and five new species.

LIOCLEMELLA Foerste.

Zoarium cylindrical, rarely branched, pointed at the base (for articulation?); otherwise much as in Lioclema.

Genotype: *Callopora ohioensis* Foerste. Ordovician, Silurian. Six described and five new species.

THALLOSTIGMA Hall.

Family CONSTELLARIIDÆ Ulrich.

Zoarium ramose, frondescent, laminar, or incrusting; zoœcia thin-walled and prismatic in the immature region, with thicker walls and subcylindrical when mature; apertures rounded, peristomes slightly elevated; mesopores angular, abundant, commonly isolating the zoœcia, at intervals gathered into clusters, which are usually stellate, closed at the surface, the closure with numerous minute perforations; true acanthopores wanting, but granules often very abundant on the interspaces; diaphragms in both zoœcia and mesopores.

CONSTELLARIA Dana.

Zoarium growing into erect, flattened branches or fronds from a basal expansion which is attached to foreign bodies; surface with depressed stellate maculæ, the spaces between the rays elevated and occupied by two or three short rows or clusters of closely approximated apertures; mesopores aggregated into maculæ, internally with gradually crowding diaphragms.

Genotype: *Ceriopora constellata* (Van Cleve) Dana. Ordovician. Nine described and three new species.

STELLIPORA Hall.

Differs from Constellaria in its incrusting habit and in having only mesopores in the interspaces between the raised zoœcial clusters.

Genotype and only known species: *Stellipora antheloidea* Hall. Ordovician.

NICHOLSONELLA Ulrich.

Zoarium a laminar expansion, sometimes giving off flattened intertwining branches or fronds; interspaces often granose, interzoœcial spaces wide, filled with numerous mesopores, which have thicker and more numerous diaphragms than the zoœcial tubes; with age the spaces become filled up with a calcareous deposit, rendering the walls of the mesopores unrecognizable.

Genotype: *Nicholsonella ponderosa* Ulrich. Ordovician. Five described and nine new species.

IDIOTRYPA Ulrich.

Zoarium parasitic; zoœcia and mesopores alike crossed by thick diaphragms at short and regular intervals, diaphragms apparently perforated by numerous minute foramina; mesopores surround the zoœcia, numerous, irregular in shape, closed at the surface; walls with numerous minute vertical tubuli or cells.

Genotype and only known species: *Idiotrypa parasitica* Ulrich. Silurian.

DITTOPORA Dybowski.

Family TREMATOPORIDÆ Ulrich.

Zoarium ramose or incrusting; zoœcia irregular in axial region, their proximal ends with diaphragms and usually constricted where these occur; walls thickened in the mature region; lines of contact of walls of adjoining zoœcia distinct; mesopores generally abundant, usually of large size, closed at the surface; acanthopores more or less abundant; diaphragms in both zoœcia and mesopores.

TREMATOPORA Hall.

Zoarium ramose; surface smooth or with monticules; zoœcia thin-walled and with few diaphragms; apertures circular or oval, with a more or less well-marked peristome; interspaces solid; mesopores irregularly angular, often obscurely moniliform, with diaphragms at the constricted parts; acanthopores of medium or small size usually present.

Genotype: *Trematopora tuberculosa* Hall. Ordovician, Silurian. Ten species.

BATOSTOMA Ulrich.

Zoarium irregularly ramose, branches arising from a large basal expansion; zoœcia with walls that are thin in the immature region, much thickened and in sections appearing ringlike (but seldom in contact) in mature region; diaphragms present; mesopores numerous or few, irregular in size or shape; acanthopores usually of large size and abundant, sometimes few.

Genotype: *Monticulipora (Heterotrypa) implicata* Nicholson. Ordovician. Eighteen described and fifteen new species.

HEMIPHRAGMA Ulrich.

Like Batostoma, but diaphragms in mature region of zoœcia incomplete.

Genotype: *Batostoma irrasum* Ulrich. Ordovician. Five species.

STROMATOTRYPA Ulrich.

Zoarium consisting of one thin layer, or several superimposed, growing upon foreign bodies; zoœcia short, with few diaphragms, the proximal end scarcely prostrate, oval in cross section; walls thin, containing periodically constricted, bead-like tubuli (modified acanthopores?), one or more to each zoœcium; apertures oval, separated by depressed interspaces, the peristomes minutely papillose; mesopores abundant, beginning on the basal lamina, decreasing in size with age, closely tabulate, the diaphragms finely punctured, their openings rarely showing, being closed by a common dermal sheet.

Genotype and only described species: *Stromatotrypa ovata* Ulrich. Ordovician. Three new species.

MONOTRYPA Nicholson (PTYCHONEMA Hall and Simpson).

Zoarium massy, hemispherical, subglobose, or discoidal; zoœcia not distinguishable into mature and immature regions, comparatively large, prismatic, with walls thin throughout and often crinkled; diaphragms remote; neither mesopores nor acanthopores.

Genotype: *Chætetes undulatus* Nicholson. Ordovician, Silurian. Fourteen described and two new species.

DIPLOTRYPA Nicholson (emend. Ulrich).

Zoarium hemispheric, discoid, globular, or irregularly massy, generally free; zoœcia comparatively large, prismatic, with diaphragms; mesopores few to many, varying in size.

Genotype: *Favosites petropolitanus* Pander. Ordovician, Silurian. Four described and two new species.

Family CALLOPORIDÆ Ulrich.

Zoarium ramose, subfrondescent, or discoidal; zoœcia increasing in size very gradually, their proximal portion very much like mesopores; apertures subcircular, the openings of a greater or less number of mesopores interspersed among them, or polygonal, in which case the mesopores are few or wanting; no acanthopores.

CALLOPORA Hall (emend. Ulrich).

Zoarium usually ramose, the branches frequently anastomosing and forming bushy clumps; zoœcia at first prismatic, four to eight sided, gradually becoming cylindrical in most cases; at first with closely set diaphragms, then diaphragms more distant, finally in the mature region diaphragms usually closely set; apertures closed at times by perforated, often ornamented covers; mesopores more or less numerous, angular, crowded with diaphragms.

Genotype: *Callopora elegantula* Hall. Ordovician, Silurian. Twenty-three described and ten new species.

CALLOPORELLA Ulrich.

Zoarium a thin expansion, free or incrusting; surface smooth or undulated; zoœcia cylindrical, with thick walls and numerous diaphragms; apertures circular, arranged in regular intersecting series; mesopores numerous, angular, surrounding the zoœcia in one or two series; acanthopores small and few.

Genotype: *Calloporella harrisi* Ulrich = *Monticulipora* (*Heterotrypa*) *circularis* James. Ordovician. Three species.

Suborder CRYPTOSTOMATA Vine.

Zoœcia short, pyriform to oblong, quadrate or hexagonal, sometimes tubular; orifice anterior, usually circular; the upper or front side of the zoœcium strengthened by a calcareous deposit, solid or vesicular in nature, which, as it proceeds, leaves an opening above the orifice, thus producing a shaft or vestibule, which may be crossed by diaphragms or hemisepta.

Family **PHYLLOPORINIDÆ** Ulrich.

Zoarium branching; branches free or anastomosing, celluliferous on one side only, the other side striated; zoœcia more or less tubular, often with diaphragms; hemisepta wanting.

PHYLLOPORINA Ulrich.

Zoarium with branches irregularly anastomosing, with two to eight rows of apertures on the obverse side, on the reverse longitudinally striated; tabulated interstitial spaces generally present, closed at the surface; acanthopores often present.

Genotype: *Retepora trentonensis* Nicholson. Ordovician, Silurian. Fifteen described and four new species.

DRYMOTRYPA Ulrich (THAMNOCELLA Simpson).

Zoarium branching dichotomously at frequent intervals, on reverse longitudinally striated; zoœcia in several ranges, tubular, springing from a thin double plate, beneath which a number of vesicles (aborted zoœcia?) are present; vestibules expanding from the orifices to the angular apertures.

Genotype: *Retepora diffusa* Hall. Ordovician, Silurian. Four species.

Family **FENESTELLIDÆ** King.

Zoarium a reticulated expansion, celluliferous on one side only, composed of rigid branches, united by regular nonporiferous bars (dissepiments), or branches may be sinuous and anastomose at regular intervals, or may remain free; zoœcia oblong, quadrate, or hexagonal in outline, embedded in a calcareous crust which is minutely porous, especially on the noncelluliferous side; orifice anterior, semielliptical, truncated behind; apertures rounded, with peristome and closed at times by a centrally perforated closure; a superior hemiseptum generally present, an inferior one less frequently.

FENESTELLA Lonsdale (ACTINOSTOMA Young and Young, FLABELLIPORINA Simpson).

Zoarium flabellate or funnel shaped, celluliferous on the inner side; branches generally straight, sometimes flexuous, connected at regular intervals by dissepiments; apertures in two rows, separated by a plain or tuberculated median keel.

Genotype: *Gorgonia antiqua* (Goldfuss?) Lonsdale. Accepted genotype: *Fenestella plebeia* McCoy. Range, Ordovician–Carboniferous. One hundred and eleven described and a considerable number of new species.

SEMICOSCINIUM Prout (CRYPTOPORA Nicholson, CARINOPORA Nicholson, CYCLOPORINA Simpson).

Zoarium funnel shaped, celluliferous on the outer side; dissepiments wide, very short, the branches appearing to anastomose on the nonporiferous face, where the fenestrules are subrhomboidal or rounded; apertures in two rows, median keel very high and expanded at the summit.

Genotype: *Semicoscinium rhomboideum* Prout. Silurian, Devonian. Twenty-six species.

FENESTRAPORA Hall.

Zoarium as in Semicoscinium, except that the reverse of the zoarium and the expanded summits of the carinæ bear large scattered pores or pits.

Genotype: *Fenestrapora biperforata* Hall. Devonian. Three species.

ISOTRYPA Hall (TECTULIPORELLA Simpson).

Zoarium funnel-shaped, branches connected by dissepiments; apertures in two rows, separated by a carina; the carinæ prominent, expanded at the summit; summits connected by round or oval lateral bars, usually situated above the dissepiments; on the reverse face a more or less conspicuous pore occurs on or near each dissepiment. The superstructure gives the obverse much the appearance of the reverse of the zoarium.

Genotype: *Fenestella* (*Isotrypa*) *conjunctiva* Hall. Devonian. Two species.

LOCULIPORA Hall (emend.) (TECTULIPORA Hall).

Zoarium funnel-shaped, branches connected by short, typically reduced to a minimum, nonporiferous dissepiments; apertures in two rows; branches and dissepiments carinated, the carinæ coalescing; summits of carinæ much expanded, angular, and slightly carinated, their width usually equaling that of the branches and dissepiments below and hence causing difficulty in distinguishing the obverse and reverse sides.

Genotype: *Fenestella perforata* Hall. Silurian, Devonian. Four species.

UNITRYPA Hall.

Zoarium funnel-shaped; branches connected by dissepiments; apertures in two rows, separated by a carina; carinæ prominent, thickened above and connected by thin oblique subimbricating plates (scalæ), which may be as numerous as the zoœcia, or only two to each fenestrule.

Genotype: *Fenestella* (*Hemitrypa*) *lata* Hall. Silurian, Devonian. Sixteen species.

HEMITRYPA Phillips.

Zoarium as in Fenestella, but has a reticulated superstructure whose meshes correspond in number and position with the zoœcial apertures; the structure rests on pillars which rise at regular intervals from the moderate median keel of the branches.

Genotype: *Hemitrypa oculata* Phillips. Range, Silurian–Carboniferous. Sixteen species.

HELICOPORA Claypole.

Zoarium spiral, the inner edge thickened and nonporiferous, but without forming a solid axis; otherwise as in Fenestella.

Genotype: *Helicopora latispiralis* Claypole. Silurian, Devonian. Two species.

ARCHIMEDES Owen (ARCHIMEDIPORA D'Orbigny).

Zoarium a spirally wound fenestrated expansion supported by a solid calcareous, central axis; otherwise as in Fenestella.

Genotype: *Fenestella* (*Archimedes*) *wortheni* Hall. Mississippian. Sixteen species.

POLYPORA McCoy (PROTORETEPORA De Koninck, POLYPORELLA Simpson, FLABELLIPORELLA Simpson).

Zoarium as in Fenestella but has from two to eight rows of zoœcia on a branch, and lacks the median keel, though this is sometimes represented by a row of strong nodes or tubercles.

Genotype: *Polypora dendroides* McCoy. Range, Silurian–Carboniferous. Eighty-two described and other new species.

LYROPORA Hall (LYROPORELLA, LYROPORINA, LYROPORIDRA Simpson).

Zoarium flabellate, the fenestrated portion spread between the arms of a nonporiferous **U** or **V** shaped calcareous support, which is free or pedunculate at the base; zoœcia in from two to five ranges; no median keel.

Genotype: *Fenestella* (*Lyropora*) *subquadrans* Hall. Mississippian. Seven species.

FENESTRALIA Prout.

Zoarium as in Fenestella, but with four rows of apertures, two on each side of the prominent median keel.

Genotype: *Fenestralia sancti-ludovici* Prout. Mississippian. Two species.

THAMNISCUS King.

Zoarium as in Polypora, but branches bifurcate more frequently and are rarely or not at all connected by dissepiments.

Genotype: *Ceratophytes dubius* Schlotheim. Range, Silurian–Carboniferous. Thirteen species.

PHYLLOPORA King.

Zoarium funnel-shaped, celluliferous on the outer face; fenestrules oval, branches anastomosing or connected by broad celluliferous dissepiments; zoœcia in two ranges normally; without median keel.

Genotype: *Gorgonia ehrenbergi* Geinitz. Devonian. One species.

RETEPORIDRA (=RETEPORELLA Simpson)[1] (ANASTOMOPORA Simpson).

Zoarium a flabellate or undulating expansion with thickened margins; branches sinuous or zigzag, anastomosing at short and regular intervals so as to produce a regular series of oval fenestrules; apertures in three to seven rows; branches without a median carina.

Genotype: *Retepora undulata* Simpson=*Fenestella perundata* Hall. Devonian. Three species.

RETEPORINA D'Orbigny.

Zoarium as in Reteporidra, but the zoœcia are in two ranges, with the apertures separated or not by a more or less well-marked median carina.

Genotype: *Retepora prisca* Goldfuss. Devonian, Mississippian. Eight species.

PTILOPORELLA Hall (PINNAPORELLA Simpson, 1897).

Zoarium a fenestrated funnel-shaped expansion; branches of two sizes, the smaller or secondary branches proceeding laterally from the larger or primary ones, either from one or both sides; as the frond expands, other large branches proceed from the primary ones, this process continuing during the growth of the frond; apertures in two rows separated by a carina; the carinæ of the primary branches more prominent than those of the secondary branches.

Genotype: *Fenestella* (*Ptiloporella*) *laticrescens* Hall. Silurian, Devonian. Four species.

PTILOPORINA Hall (PINNAPORELLA Simpson, 1895, PINNAPORINA Simpson).

Zoarium like that of Ptiloporella in mode of growth, but branches have three or more rows of apertures and no median carina.

Genotype: *Fenestella* (*Ptiloporina*) *conica* Hall. Devonian. Four species.

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[1] Reteporidra is proposed for Reteporella, preoccupied by Busk, Challenger Report, X, 1884, p. 126.

Family ACANTHOCLADIIDÆ Zittel.

Zoarium a pinnate or fenestrate expansion, celluliferous on one face only, consisting of strong central stems which give off numerous smaller, lateral branches from their margins; the lateral branches are free or unite with those of the next stem; nonporiferous dissepiments rarely present; zoœcial characters mostly as in the Fenestellidæ.

PINNATOPORA Vine (GLAUCONOME of authors).

Zoarium a small delicate stipe, with short, free lateral branches given off frequently and at regular intervals; apertures in two rows, separated by a moderate median keel.

Genotype: *Glauconome elegans* Young and Young. Range, Devonian–Carboniferous. Nineteen species.

ACANTHOCLADIA King.

Zoarium as in Pinnatopora, but larger and stronger and with three or more rows of apertures between which the surface is elevated into small longitudinal ridges or series of tubercules.

Genotype: *Ceratophytes anceps* Schlotheim. Carboniferous. One species.

SEPTOPORA Prout.

Zoarium a fenestrate, flabellate or leaf-like expansion; primary branches numerous, increasing by bifurcation or interpolation; the lateral branches unite with those from the adjacent primary branches; apertures in two rows on primary and lateral branches; reverse usually with fine striæ and scattered dimorphic pores.

Genotype: *Septopora cestriensis* Prout. Mississippian, Carboniferous. Eleven species.

SYNOCLADIA King.

Zoarium as in Septopora, but branches stronger and with three or more rows of apertures, usually between elevated ridges.

Genotype: *Retepora virgulacea* Phillips. No American species known.

PTILOPORA McCoy (DENDRICOPORA De Koninck).

Zoarium pinnate, the stipe much stronger than the oblique lateral branches, which are occasionally and irregularly united by dissepiments; apertures in two rows.

Genotype: *Ptilopora pluma* McCoy. Devonian, Mississippian. Eight species.

ICHTHYORACHIS McCoy.

Zoarium as in Ptilopora, but the stipe bears five or more rows of apertures and the branches usually three.

Genotype: *Ichthyorachis newenhami* McCoy. Silurian. One species.

DIPLOPORARIA (=DIPLOPORA Young and Young).[1]

Zoarium as in Pinnatopora, but has no lateral branchlets.

Genotype: *Diplopora marginalis* Young and Young. Mississippian, Carboniferous. Two species.

RAMIPORA Toula.

Family SPHRAGIOPORIDÆ Ulrich.

SPHRAGIOPORA Ulrich.

Zoarium parasitic, forming small, circular, subhemispheric patches on foreign bodies; zoœcia of the same type as in Fenestella; apertures circular, with a slight peristome, arranged in one or two rows on the summits of slightly elevated, radially arranged, broad ridges; spaces between raised portions solid.

Genotype and only known species: *Sphragiopora parasitica* Ulrich. Mississippian.

Family ARTHROSTYLIDÆ Ulrich.

Zoarium articulated, consisting of numerous subcylindrical segments, united into small pinnate or bushy colonies, or of continuous, dichotomously divided branches; zoœcia subtubular, more or less oblique, radially arranged about a central axis, and opening on all sides of the segments; or one side may be noncelluliferous and longitudinally striated.

ARTHROSTYLUS Ulrich (Arthronema Ulrich).

Zoarium bushy, dichotomously branching, the whole consisting of numerous exceedingly slender, equal, subquadrate segments, united by terminal articulation; one face longitudinally striated, on each of the other, commonly three, faces a linear series of apertures between longitudinal ridges.

Genotype: *Helopora tenuis* James. Ordovician. Four species.

HELOPORA Hall.

Like Arthrostylus, but the segments are generally larger and have zoœcial apertures on all sides.

Genotype: *Helopora fragilis* Hall. Ordovician, Silurian. Twelve species.

ARTHROCLEMA Billings.

Zoarium of segments celluliferous on all sides, articulated terminally and laterally in a pinnate manner; apertures oval, in series between longitudinal ridges.

Genotype: *Arthroclema pulchellum* Billings. Ordovician. Six species.

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[1] Diploporaria proposed for Diplopora, preoccupied by Schafhäutl.

SCEPTROPORA Ulrich.

Zoarium of segments which become much expanded in their upper portion and at the top have a socket for the articulation of the next segment; lower portion striated, without apertures; upper part with apertures all around; apertures subovate, in linear series between longitudinal ridges.

Genotype: *Sceptropora facula* Ulrich. Ordovician, Silurian. Two species.

NEMATOPORA Ulrich.

Zoarium very slender, ramose, continuous above the pointed basal extremity; zoœcia subtubular, arranged radially around one or two minute axial tubes; apertures oval or subcircular; with peristome, generally in linear series between longitudinal ridges.

Genotype: *Nematopora ovalis* Ulrich. Range, Ordovician–Devonian. Fifteen species.

Family RHABDOMESONTIDÆ Vine.

Zoarium ramose or simple, not articulated, sometimes with an axial tube, but generally solid, in which case the axial region is occupied by thin-walled primitive tubes, with or without diaphragms; hemisepta usually present, but never conspicuous; apertures circular or oval, usually in linear series between longitudinal elevated ridges, or in diagonally intersecting series; vestibule a rhombic or hexagonal sloping area; mesopores generally absent.

RHOMBOPORA Meek.

Zoarium slender, ramose, solid; zoœcia thick-walled in vestibular region; apertures in longitudinal or diagonally intersecting series; acanthopores present, sometimes of two kinds, large and small.

Genotype: *Rhombopora lepidodendroides* Meek. Range, Silurian–Carboniferous. Twenty-nine described and several undescribed species.

RHABDOMESON Young and Young.

Zoarium with a slender axial tube, to which the proximal ends of the zoœcia are attached; otherwise like Rhombopora.

Genotype: *Millepora gracilis* Phillips; from the Carboniferous of England and Scotland. No American species have yet been made known.

CŒLOCONUS Ulrich.

Zoarium simple, hollow, very gradually expanding from an attenuated, striated base; zoœcia short, with well developed hemisepta, apertures in diagonally intersecting series.

Genotype: *Cœloconus rhombicus* Ulrich. Mississippian. Two species.

BACTROPORA Hall.

Zoarium simple or only slightly branched; lower extremity pointed; otherwise as in Rhombopora.

Genotype: *Trematopora ? granistriata* Hall. Devonian, Mississippian. Three species.

ORTHOPORA Hall.

Zoarium ramose, solid; apertures in parallel longitudinal rows, with ridges between; acanthopores present.

Genotype: *Trematopora regularis* Hall. Silurian, Devonian. Twenty-six species.

ACANTHOCLEMA Hall.

Zoarium slender, ramose; zoœcia tubular, arising from a filiform axis in the center of the branch; apertures oval, in diagonally intersecting series, or linear series separated by ridges; vestibules polygonal, broadly sloping; acanthopores between the apertures.

Genotype: *Trematopora alternata* Hall. Devonian, Mississippian. Six species.

NEMATAXIS Hall.

Zoarium slender, ramose; zoœcia long, tubular, diverging obliquely from a central filiform axis, near the surface bending abruptly; interspaces solid; apertures oval, in linear series, separated by ridges, with very thin, slightly elevated peristomes; on the surface at intervals there are monticules destitute of cell apertures, which extend around the branch, giving it an annulated appearance.

Genotype: *Nemataxis fibrosus* Hall. Devonian. Two species.

TROPIDOPORA Hall.

Zoarium slender, ramose; apertures in irregular longitudinal series, separated by sinuous ridges, with very thin slightly elevated peristomes.

Genotype and only known species: *Tropidopora nana* Hall. Devonian.

STREBLOTRYPA Ulrich.

Zoarium ramose, slender, solid; zoœcia long, tubular, diverging from the center; inferior hemiseptum best developed, situated rather far down; apertures regularly elliptical, with peristome, usually arranged in longitudinal series; below the apertures there are from one to twelve or more small pits, arranged, when numerous, in two or three rows; occasionally very small acanthopores present.

Genotype: *Streblotrypa nicklesi* Ulrich. Devonian, Carboniferous. Fifteen species.

HYPHASMOPORA Etheridge, Jun.

From the Carboniferous of Scotland.

Family CHAINODICTYONIDÆ.

CHAINODICTYON Foerste.

Zoarium retiform, of inosculating branches, which are undulated transversely on the reverse; zoœcia elongate, conical, or subtubular; apertures large, with thin interspaces in several rows, arranged in acutely diagonally intersecting series.

Genotype: *Chainodictyon laxum* Foerste. Carboniferous. Two species.

Family PTILODICTYONIDÆ Zittel.

Zoarium bifoliate, composed of two layers of zoœcia, grown together back to back, usually jointed, at least at the base, and forming leaf-like expansions or compressed branching or inosculating stems; mesotheca without median tubuli; zoœcia usually have hemisepta and semielliptical orifices; apertures usually ovate, surrounded either by a sloping area or a ringlike peristome; vestibules separated by thick walls.

PTILODICTYA Lonsdale (HETERODICTYA Nicholson).

Zoarium a simple, unbranched, lanceolate or falciform frond, narrow or wide, which articulates with a small basal expansion; in the young condition the zoarium consists of longitudinally arranged, narrow, oblong-quadrate zoœcia, new zoœcia of different width and arrangement being added subsequently on each side; walls of vestibules thick, solid, and with a double row of minute dots.

Genotype: *Flustra lanceolata* Lonsdale. Ordovician, Silurian. Sixteen species.

ESCHAROPORA Hall (NICHOLSONIA Waagen and Wentzel).

Like Ptilodictya, but distinguished chiefly by the arrangement of the apertures, which are in decussating series, and by the sloping hexagonal area which surrounds the apertures.

Genotype: *Escharopora recta* Hall. Ordovician. Fourteen described, and eleven new species.

CLATHROPORA Hall.

Zoarium composed of anastomosing branches, forming a regular network with round or oval fenestrules, with a pointed, articulating base; apertures usually subquadrate, arranged longitudinally.

Genotype: *Clathropora frondosa* Hall. Silurian, Devonian. Five species.

PHÆNOPORA Hall.

Like Ptilodictya, except that there are two mesopores in each interspace between the ends of the apertures.

Genotype: *Phænopora explanata* Hall. Ordovician, Silurian, Fourteen species.

ARTHROPORA Ulrich.

Zoarium bushy, composed of numerous articulating equal segments, spread in a plane; apertures elliptical, surrounded by a delicate peristome; interspaces with one or more thread-like ridges variously disposed, and with a row of minute papillæ.

Genotype: *Stictopora* (*Ptilodictya*) *shafferi* Meek. Ordovician. Five described and four new species.

GRAPTODICTYA Ulrich.

Zoarium a narrow bifurcating frond with a pointed base articulating with a small basal expansion; apertures subcircular, surrounded by a peristome subpolygonal in outline; interspaces depressed, usually with one or two fine tortuous elevated lines.

Genotype and only known species: *Ptilodictya elegans* Ulrich. Ordovician.

STICTOPORINA Hall.

Zoarium a simple or branching frond, from an obtusely pointed, articulating base; apertures oval, in decussating series, inclosed in rhomboidal or polygonal areas; interspaces elevated, angular.

Genotype: *Trematopora claviformis* Hall. Devonian. Three species.

Family STICTOPORELLIDÆ.

This family differs from the Ptilodictyonidæ mainly in that the zoarium is not articulated, but grows upward from, and is continuous with, a spreading base.

STICTOPORELLA Ulrich.

Zoarium branching, cribrose, or leaf-like; zoœcia with the primitive portion tubular, usually long, generally without hemisepta, the inferior one only occasionally present; orifices at the bottom of a wide, sloping vestibule; thick-walled, untabulated mesopores occur between the apertures and line the margins of the zoarium.

Genotype: *Stictoporella interstincta* Ulrich = *Ptilodictya flexuosa* James. Ordovician. Nine described and four new species.

PTILOTRYPA Ulrich.

Zoarium ramose, with compressed or frondescent branches; surface with irregular longitudinally channeled areas appearing like maculæ;

zoœcia long oblique tubes, with an occasional diaphragm; apertures ovate, very oblique, acute anteriorly, posterior margin somewhat elevated; at the upper extremity of the aperture an accessory pore.

Genotype and only known species: *Ptilotrypa obliquata* Ulrich. Ordovician.

INTRAPORA Hall.

Zoarium ramose, from a spreading base, branches compressed, dividing dichotomously; zoœcia tubular, at first parallel to the mesotheca, then bend abruptly outward; apertures oval, with peristome; interspaces with minute angular pits, the openings of the numerous tabulated mesopores; the interspaces sometimes solid, the mesopores having been closed by a deposit of horizontally laminated calcareous tissue.

Genotype: *Intrapora puteolata* Hall. Devonian, Mississippian. Three species.

COSCINELLA Hall.

Zoarium an explanate frond, of anastomosing branches, from a spreading base; zoœcia tubular, resting upon the mesotheca, with rather long, direct vestibules; spaces between the vestibules and the margins of the fenestrules occupied by numerous tabulated mesopores, opening upon the surface as minute angular pits; apertures circular, irregularly disposed.

Genotype: *Coscinella elegantula* Hall and Simpson. Devonian. Two species.

TÆNIODICTYA Ulrich.

Zoarium ramose, rising from a basal expansion; branches rather narrow, compressed; zoœcia short, tubular, oblong, both hemisepta present; orifices subcircular, at bottom of a sloping vestibular area; interspaces ridgelike.

Genotype: *Tæniodictya ramulosa* Ulrich. Devonian, Mississippian. Seven species.

STICTOPORA Hall.

Zoarium ramose; zoœcial tubes long, without hemisepta; apertures with distinct peristomes; interspaces wide, sometimes with raised lines.

Genotype: *Stictopora elegantula* Hall. Ordovician.

HELIOTRYPA Ulrich.

Zoarium bifoliate; zoœcia subtubular, thin-walled, and prostrate upon the mesotheca, superior hemiseptum moderately developed; vestibules with thick walls, traversed obliquely by radially arranged minute tubuli; spaces between vestibules of variable width, occupied by numerous, irregular, thick-walled, tabulated mesopores, which are also clustered at intervals into maculæ; orifices circular, at the bottom of the sloping vestibule.

Genotype and only known species: *Heliotrypa bifolia* Ulrich. Mississippian.

Family RHINIDICTYONIDÆ Ulrich.

Zoarium bifoliate, continuous or jointed, consisting of compressed branches or leaf-like expansions; occasionally trifoliate; zoœcia subquadrate, arranged longitudinally, inferior hemiseptum wanting; orifices and apertures elliptical or subcircular, sometimes a little truncated posteriorly; median tubuli between the median laminæ and between the longitudinal rows of zoœcia; mesopores wanting, but vesicular tissue often developed.

RHINIDICTYA Ulrich.

Zoarium ramose, consisting of narrow, compressed, bifurcating, straight-edged branches with parallel margins, attached to foreign bodies by a continuous expanded base; apertures in longitudinal series between slightly elevated or flexuous ridges, carrying a crowded row of small blunt spines; space immediately surrounding the apertures sloping up to the summits of the ridges.

Genotype: *Rhinidictya nicholsoni* Ulrich. Ordovician. Nineteen species.

EURYDICTYA Ulrich.

Zoarium a broad, simple or irregularly divided, bifoliate expansion; surface with more or less conspicuous, small, solid maculæ or monticules; structure otherwise about as in Rhinidictya.

Genotype: *Eurydictya montifera* Ulrich. Ordovician. Four species.

PACHYDICTYA Ulrich.

Zoarium ramose, of narrow bifurcating stipes, with parallel margins, or irregular undulating fronds, with acute, nonporiferous margins; surface with small maculæ, surrounded by apertures slightly larger than the average; sometimes the marginal rows of apertures are also slightly larger than the average; zoœcia with thin walls, elliptical or subquadrate in shape, separated from adjoining zoœcia by small vesicles; vestibules direct, walls thickened and appearing ringlike in sections; spaces between vestibules traversed by one or more series of minute tubuli; one or more diaphragms developed; apertures commonly elliptical; interspaces usually forming a peristome about the apertures.

Genotype: *Pachydictya robusta* Ulrich. Ordovician, Silurian. Twenty-five described and several new species.

PHYLLODICTYA Ulrich.

Zoarium simple or irregularly branched, growing from an expanded basal attachment; zoœcia long, tubular, with diaphragms but no hemisepta, bending very gradually outward from the central axis, thus causing the apertures to be more or less strongly oblique, with the posterior edge liplike; interspaces wide, subsolid, traversed vertically by one or two rows of minute tubuli, which appear as papillæ at the surface.

Genotype: *Phyllodictya frondosa* Ulrich. Ordovician. Two species.

EUSPILOPORA Ulrich.

Zoarium consisting of small, irregularly divided branches, with serrated or wavy edges; apertures in four or more linear series on the middle of the branch, between slightly elevated longitudinal ridges bearing numerous small nodes; alternately on the two sides are short rows directed obliquely upward; between the ends of the zoœcia shallow, lenticular vesicles are found; interspaces traversed vertically by numerous minute tubuli.

Genotype: *Euspilopora serrata* Ulrich. Devonian. Four species.

DICRANOPORA Ulrich.

Zoarium jointed; segments ligulate, rarely simple, usually bifurcating at the upper end; each extremity somewhat thickened; minute structure of zoœcia and arrangement of apertures as in Rhinidictya.

Genotype: *Ptilodictya internodia* Miller and Dyer. Ordovician, Silurian. Five species.

GONIOTRYPA Ulrich.

Zoarium with a prominent median ridge upon both sides of the double-leaved segments; otherwise like Dicranopora.

Genotype and only known species: *Goniotrypa bilateralis* Ulrich. Ordovician.

TRIGONODICTYA Ulrich.

Zoarium of triangular branches, constructed upon the plan of Prismopora, but with zoœcia and all minute details of structure as in Pachydictya.

Genotype: *Trigonodictya conciliatrix* Ulrich. Ordovician, Silurian. Two described and two new species.

Family CYSTODICTYONIDÆ Ulrich.

Zoarium consisting of two or three layers of cells grown together back to back, forming branching, fenestruled, or entire leaf-like expansions or triangular branches; zoœcia semicordate or obovate-acuminate in outline, arranged longitudinally; orifices subcircular, vestibule elongated; apertures with peristome and more or less well-developed lunarium; interzoœcial spaces occupied by vesicular tissue, often filled with a calcareous deposit near the surface.

CYSTODICTYA Ulrich (ARCANOPORA Vine, STICTOCELLA Simpson).

Zoarium ramose, branches sharply elliptical in cross section, with subparallel, nonporiferous margins; apertures subelliptical, in linear series between longitudinal ridges, which may not always be present, lunarium on the side of the aperture nearest the margin of the branch; interspaces finely striated, granulose or smooth; pits and cells show only in a worn condition.

Genotype: *Cystodictya ocellata* Ulrich. Range, Devonian–Carboniferous. Thirty-five species.

DICHOTRYPA Ulrich.

Zoarium a large, thin, bifoliate expansion; surface with solid maculæ; otherwise as in Cystodictya.

Genotype: *Dichotrypa foliata* Ulrich. Devonian, Mississippian. Seven species.

COSCINIUM Keyserling (COSCINOTRYPA Hall and Simpson).

Zoarium of flattened branches, celluliferous on both sides, which inosculate at short intervals till there is produced a broad frond, perforated at rythmical intervals by circular or elliptical fenestrules; in other respects like Cystodictya.

Genotype: *Coscinium cyclops* Keyserling. Range, Devonian–Carboniferous. Five species.

TÆNIOPORA Nicholson (PTEROPORA Hall, STICTOPORIDRA Simpson).

Zoarium with a strongly elevated longitudinal central ridge on each face, so that a cross section of the branches is somewhat rhomboidal; otherwise like Cystodictya.

Genotype: *Tæniopora exigua* Nicholson. Devonian. Five species.

THAMNOTRYPA Hall (Thamnopora Hall).

Zoarium consisting of a very narrow stipe, from which proceed rectangularly lateral branches; celluliferous on each face; cell apertures oval; usually disposed in two parallel longitudinal rows, separated by a prominent ridge. Sometimes three rows occur and occasionally four rows for a short distance on the stipe. On the lateral branches there are never more than two rows.[1]

Genotype and only known species: *Thamnopora divaricata* Hall. Devonian.

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[1] Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 546.

SEMIOPORA Hall.

Zoarium a flattened, bifurcating frond, proceeding from a spreading base; branches narrow, with parallel margins and a narrow non-celluliferous marginal space; interzoœcial spaces occupied by vesicular tissue; apertures oval or subcircular, regularly disposed in parallel longitudinal rows; apertures largest in marginal rows; between the apertures in a longitudinal direction are the openings of two small mesopores side by side.

Genotype and only known species: *Semiopora bistigmata* Hall. Devonian.

PTILOCELLA Simpson.

Zoarium ensiform, with a pointed, striated base; apertures circular, arranged in parallel, longitudinal rows, separated by ridges; margins of frond striated, non-celluliferous.

Genotype and only known species: *Ptilodictya parallela* Hall. Devonian

ACROGENIA Hall.

Zoarium segmented, arising from cylindrical rootlets; two segments proceed from the truncated termination of the proceeding one; segments obconical and striated at the base, gradually becoming flattened and showing apertures; apertures largest in the marginal rows, with prominent lunarium, in linear series separated by ridges.

Genotype and only known species: *Acrogenia prolifera* Hall. Devonian.

PRISMOPORA Hall.

Zoarium ramose, of triangular, bifurcating or trifurcating branches, sometimes anastomosing and forming clumps; branches with the sides subequal, usually a little concave, edges sharp, sometimes serrated or wavy; zoœcia arise from mesothecæ which radiate from the center to the margins; apertures varying in arrangement, sometimes on the summits of small papillæ; structure otherwise as given for the family.

Genotype: *Prismopora triquetra* Hall. Range, Devonian-Carboniferous. Nine species.

SCALARIPORA Hall.

Zoarium with the faces of the triangular branches crossed by salient transverse ridges; otherwise like Prismopora.

Genotype: *Scalaripora scalariformis* Hall. Devonian. Five species.

GLYPTOPORA Ulrich.

Zoarium a thin expansion, traversed on both surfaces by salient ridges or crests, uniting so as to form larger or smaller cup-shaped cavities; or a unilaminate base on which the ridges are greatly developed and form large leaves; these ridges or leaves are composed of two layers of zoœcia growing in opposite directions from a mesotheca; in the angles of each cup is a depressed noncelluliferous furrow which with similar furrows in neighboring cups produces a thin junction between the leaves; surface of the ridges and of the cups with elongated solid maculæ or "dimples;" structure otherwise as given for the family.

Genotype: *Coscinium plumosum* Prout. Mississippian. Eight species.

PHRACTOPORA Hall.

Like Glyptopora except that the apertures are relatively more rounded and larger, and the junction angles are celluliferous and thicker than any other part of the leaves.

Genotype: *Phractopora cristata* Hall. Devonian, Mississippian. Four species.

CERAMELLA Hall.

> Zoarium consisting of thin, foliaceous expansions, arising from a spreading base; celluliferous on each face; cells tubular, oblique; cell apertures oval or circular, disposed in quincunx order; surface marked by sterile maculæ, which are usually depressed below the general surface of the branch.[1]

Genotype and only known species: *Ceramella scidacea* Hall. Devonian.

EVACTINOPORA Meek and Worthen.

Zoarium free, consisting of four or more vertical leaves, arranged in a cruciform or stellate manner; rays free in the upper half, united, thick, and nonporiferous in the basal portion; apertures on both faces of the leaves or rays, subcircular; interspaces solid at the surface, occupied by vesicular tissue internally.

Genotype: *Evactinopora radiata* Meek and Worthen. Mississippian. Four species.

GONIOCLADIA Etheridge, Jun. (CARINELLA Etheridge, Jun.).

Family ACTINOTRYPIDÆ Ulrich

ACTINOTRYPA Ulrich.

Zoarium a thin bifoliate expansion; apertures show the projecting ends of from eight to ten vertical septa-like ridges that extend down along the sides of the vestibule nearly or quite to the orifice.

Genotype and only known species: *Fistulipora peculiaris* Rominger. Mississippian.

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[1] Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 527.

Family CYCLOPORIDÆ.

CYCLOPORA Prout.

Zoarium unilaminar, parasitic or free; zoœcia subtubular, hemisepta wanting or but little developed; vestibules with rather thick walls; between the vestibules are mesopores crossed by thick diaphragms, which usually have a central perforation and are open at the surface; apertures subcircular, with a smooth or granulose peristome; acanthopores sometimes present.

Genotype: *Cyclopora fungia* Prout. Mississippian. Two species.

CYCLOPORELLA Ulrich.

Zoarium a thin discoidal expansion; zoœcia subtubular; vestibules with a succession of superior hemisepta; irregular mesopores abundant; numerous acanthopores of large size.

Genotype: *Cycloporella spinifera* Ulrich. Mississippian. Two species.

PROUTELLA Ulrich.

Zoarium discoid, thin, free, under surface with a concentrically wrinkled epitheca; zoœcia subtubular, thin-walled; apertures broad-elliptical, surrounded by a narrow sloping area, hexagonal in outline; when perfect the apertures have a depressed calcareous plate that closes a little less than two-thirds of the opening, the orifice left being subtriangular in form, without thickened margins, and situated at the anterior side; with age the vestibules become elongated and are intersected by incomplete diaphragms.

Genotype and only known species: *Cyclopora discoidea* Prout. Mississippian.

WORTHENOPORA Ulrich.

Zoarium bifoliate, branching or palmate; zoœcia very regularly arranged, elongate rhomboidal; apertures semielliptical, the truncated posterior margin somewhat raised; on the surface the line of junction between adjoining zoœcia is marked by an elevated ridge; the elongate triangular space below the apertures perfectly plain.

Genotype: *Worthenopora spinosa* Ulrich. Mississippian. Two species.

Family RHINOPORIDÆ Ulrich.

Zoarium variable in form; zoœcia prone along the basal membrane, simple, oblong, or rhomboidal; vestibules direct, hemisepta wanting or almost so; front of zoœcia below vestibule commonly strengthened with solid or vesicular tissue.

RHINOPORA Hall.

Zoarium forming large, undulating bifoliate expansions, celluliferous on both sides; surface usually smooth, rarely with solid monticules, and traversed by slender, rounding, bifurcating ridges, which appear as shallow grooves when the surface is worn; apertures nearly circular, occupying the summits of prominent papillæ; mesopores present, but closed at the surface; large median tubuli in the mesotheca.

Genotype: *Rhinopora verrucosa* Hall. Silurian. Three species.

DIAMESOPORA Hall.

Zoarium ramose, of hollow stems lined internally by an epitheca; zoœcia simple, hexagonal, or rhomboidal, with an oval orifice in the anterior half, which with growth forms a tubular vestibule; apertures with peristomes equally elevated or highest posteriorly; intervestibular spaces compact or horizontally laminated.

Genotype: *Diamesopora dichotoma* Hall. Silurian. Five species.

LICHENALIA Hall.

Zoarium a subcircular unilaminar expansion; zoœcia prostrate; elongate-subrhomboidal, with direct subtubular vestibules; apertures rounded, with peristome much elevated on the posterior side; interspaces depressed, ? cellulose.

Genotype and only known species: *Lichenalia concentrica* Hall. Silurian.

STICTOTRYPA Ulrich.

Zoarium ramose, not pointed at the base; branches dichotomously dividing, narrow, compressed; apertures circular or elliptical, with distinct, evenly elevated peristome; interspaces flat or concave, composed of horizontally laminated solid tissue.

Genotype: *Stictopora similis* Hall. Silurian. Three species.

Suborder CHILOSTOMATA Busk.

Zoœcia oval, turbinate, urceolate, quadrate, or hexagonal, arranged usually side by side; orifice more or less anterior, of less diameter than the zoœcium, closed by a movable cover; ova commonly matured in external marsupia: appendicular organs frequently present.

Family PALESCHARIDÆ Ulrich.

PALESCHARA Hall.

Zoarium forming thin incrustations upon Orthocerata and other organisms; zoœcia very short, direct, with thin walls; apertures (if such they can be called) long hexagonal or polygonal.

Genotype: *Paleschara incrustans* Hall. Range, Ordovician–Devonian. Thirteen species.

FOREIGN GENERA.

A number of generic terms, founded for species occurring in European Paleozoic deposits, have been proposed in European publications, but have not found their way into American literature. A list of these is subjoined, though it is scarcely probable that the list is complete. A considerable number of these generic terms appeared before naturalists had begun to feel the necessity for precise and complete diagnoses and descriptions, so that it is not possible to fit them into our present classification. When the material is examined upon which they were based, most of these early genera will be found to occupy the same ground as genera founded much later and now in current use. Scarcely any of the genera listed below have received a second treatment, so that nothing has been added to the original unsatisfactory descriptions. We have thought that it might not be amiss to hazard a guess, based on descriptions and figures, both commonly lacking definiteness, as to what these genera may prove to be.

ACANTHOPORA Young and Young.

Acanthopora Young and Young, Proc. Nat. Hist. Soc. Glasgow, II, 1875, p. 327; Vine, Proc. Yorkshire Geol. Polyt. Soc., IX, 1885, p. 83. Genotype: *Glauconome* (*Acanthopora*) *stellipora* Young and Young, Proc. Nat. Hist. Soc. Glasgow, II, 1875, p. 327, pl. iv, 25, 26.

This subgenus seems to be based upon the perfect condition of the aperture of *Pinnatopora*, a feature of not even specific importance. However, the name would drop anyway, as it was used by D'Orbigny, Prodr. de Pal., I, 1850, p. 318.

AMORPHOTRYPA Whidborne.

Amorphotrypa Whidborne, Devonian Fauna England, II, Part 4, 1895, p. 181 (Pal. Soc. Publ., XLIX). Genotype: *Isotrypa? Gregorii* Whidborne, loc. cit., p. 181, pl. xx, 1–2 *e*.

This genus, whose structure can not be said to be fully understood as yet, seems closely related to *Isotrypa*. It is a member of the Fenestellidæ.

ARCHÆOPORA Eichwald.

Archæopora Eichwald, Lethæa Rossica, I, 1860, p. 405.

Eight species are given by Eichwald under this genus, which appears to cover some of the ground, at least, which is now included in *Callopora* Hall.

CHASMATOPORA Eichwald.

Chasmatopora Eichwald, Lethæa Rossica, I, 1860, p. 370. Only species given: *C. tenella* Eichwald, loc. cit., p. 371.

This appears to be a *Phylloporina*.

DIPHTHEROPORA De Koninck.

Diphtheropora De Koninck, Recherches sur les Animaux Fossiles, part 2, 1873, p. 13. Genotype (only species): *D. regularis* De Koninck, loc. cit., p. 13, pl. i, 4.

This is almost certainly an *Eridopora*.

DISTEICHIA Sharpe.

Disteichia Sharpe, Quar. Jour. Geol. Soc. London, IX, 1853, p. 146. Only species: *D. reticulata* Sharpe, loc. cit., p. 146, pl. vii, 8 a–d.

This appears to be a synonym for *Clathropora* Hall

FILITES (Barrande) Počta.

Filites (Barrande) Počta, Système Silurien Bohême, VIII, tome 1, 1894, p. 108. Genotype: *F. cribrosus* Počta, loc. cit., p. 110, pl. x, 19–25.

This appears to be a type not yet discovered in American strata.

LEMMATOPORA Počta.

Lemmatopora Počta, Système Silurien Bohême, VIII, tome 1, 1894, p. 102. Genotype: *L. angulosa* Počta, loc. cit., p. 105, pl. ii, 20–21.

This genus as described seems in part equivalent to *Stictoporella* Ulrich, but probably includes forms referable to other genera.

MASTOPORA Eichwald.

Mastopora Eichwald, Lethæa Rossica, I, 1860, p. 434. Only species: *M. concava* Eichwald, loc. cit., p. 434, pl. xxvii, 7 a–d.

This may be related to *Rhinopora* Hall.

MICROPORA Eichwald.

Micropora Eichwald, Lethæa Rossica, I, 1860, p. 393.

Three species are given, *M. gracilis* Eichwald, *M. cyclostomoides*, *M. rhombica*. May be *Stictoporella*, or perhaps *Clathropora*.

MYRIOLITHES Eichwald.

Myriolithes Eichwald, Lethæa Rossica, I, 1860, p. 450.

Four species are cited; probably monticuliporoids.

PTEROPORA Eichwald.

Pteropora Eichwald, Lethæa Rossica, I, 1860, p. 395.

Two species, *P. pennula* and *P. exilis*, are given. Eichwald says his genus is related to *Ichthyorachis* McCoy.

Rhabdinopora Eichwald.

Rhabdinopora Eichwald, Lethæa Rossica, I, 1860, p. 368.

Two species, *R. flabelliformis* Eichwald and *R. undulata* Eichwald, are given. Seems to be a fenestellid with one row of cells to the branch; this is a type unknown to us, unless it be a case of defective observation.

Seriopora Počta.

Seriopora Počta, Système Silurien Bohême, VIII, tome 1, 1894, p. 78. Genotype: *S. petala* Počta, loc. cit., p. 79, pl. xiii, 8–12.

Počta has undoubtedly wrongly interpreted D'Orbigny's genus *Reteporina*, which was based on Goldfuss's *Retepora prisca*. Počta's *Seriopora* is the *Reteporina* of D'Orbigny, as interpreted by Simpson and as we give it; Počta's *Reteporina* (loc. cit., p. 80) appears to be in part *Fenestella* and perhaps, in part, another as yet unnamed genus of the Fenestellidæ.

Sulcoretepora D'Orbigny.

Sulcoretepora D'Orbigny, Prodr. de Pal., I, 1850, p. 152.

This genus was based upon *Flustra parallela* Phillips, 1833. The definition given is too meager for recognition. The *Flustra parallela* of Phillips is now considered to be a *Cystodictya*.

Utropora Počta.

Utropora Počta, Système Silurien Bohême, VIII, tome 1, 1894, p. 75. Genotype: *U. nobilis* (Barrande) Počta, loc. cit., p. 76, pl. xvii, 4–17.

Like *Fenestella*, but differs chiefly in having very much elongated fenestrules (6 by 1 mms.) and in lacking a median keel.

LIST OF GENERA, SHOWING SYSTEMATIC POSITION.

Genus.	Family.	Suborder.
Acanthocladia King.	Acanthocladiidæ.	Cryptostomata.
Acanthoclema Hall.	Rhabdomesontidæ.	Cryptostomata.
Acrogenia Hall.	Cystodictyonidæ.	Cryptostomata.
Actinotrypa Ulrich.	Actinotrypidæ.	Cryptostomata.
Amplexopora Ulrich.	Amplexoporidæ.	Trepostomata.
Anisotrypa Ulrich.	Batostomellidæ.	Trepostomata.
Anolotichia Ulrich.	Ceramoporidæ.	Cyclostomata.
Archimedes Owen.	Fenestellidæ.	Cryptostomata.
Arthroclema Billings.	Arthrostylidæ.	Cryptostomata.
Arthropora Ulrich.	Ptilodictyonidæ.	Cryptostomata.
Arthrostylus Ulrich.	Arthrostylidæ.	Cryptostomata.
Ascodictyon Nicholson and Etheridge Jun.	Ascodictyonidæ.	Ctenostomata.
Aspidopora Ulrich.	Monticuliporidæ.	Trepostomata.
Atactopora Ulrich.	Heterotrypidæ.	Trepostomata.

Genus.	Family.	Suborder.
Atactoporella Ulrich.	Monticuliporidæ.	Trepostomata.
Bactropora Hall.	Rhabdomesontidæ.	Cryptostomata.
Batostoma Ulrich.	Trematoporidæ.	Trepostomata.
Batostomella Ulrich.	Batostomellidæ.	Trepostomata.
Berenicea Lamouroux.	Diastoporidæ.	Cyclostomata.
Botryllopora Nicholson.	Botrylloporidæ.	Cyclostomata.
Buskopora Ulrich.	Fistuliporidæ.	Cyclostomata.
Bythopora Miller and Dyer.	Batostomellidæ.	Trepostomata.
Bythotrypa Ulrich.	Ceramoporidæ.	Cyclostomata.
Callopora Hall.	Calloporidæ.	Trepostomata.
Calloporella Ulrich.	Calloporidæ.	Trepostomata.
Callotrypa Hall.	Batostomellidæ.	Trepostomata.
Ceramella Hall.	Cystodictyonidæ.	Cryptostomata.
Ceramophylla Ulrich.	Ceramoporidæ.	Cyclostomata.
Ceramopora Hall.	Ceramoporidæ.	Cyclostomata.
Ceramoporella Ulrich.	Ceramoporidæ.	Cyclostomata.
Chainodictyon Foerste.	Chainodictyonidæ.	Cryptostomata.
Chiloporella Ulrich.	Ceramoporidæ.	Cyclostomata.
Chilotrypa Ulrich.	Fistuliporidæ.	Cyclostomata.
Clathropora Hall.	Ptilodictyonidæ.	Cryptostomata.
Clonopora Hall.	Entalophoridæ.	Cyclostomata.
Cœlocaulis Hall.	Fistuliporidæ.	Cyclostomata.
Cœloclema Ulrich.	Ceramoporidæ.	Cyclostomata.
Cœloconus Ulrich.	Rhabdomesontidæ.	Cryptostomata.
Constellaria Dana.	Constellariidæ.	Trepostomata.
Coscinella Hall.	Stictoporellidæ.	Cryptostomata.
Coscinium Keyserling.	Cystodictyonidæ.	Cryptostomata.
Crepipora Ulrich.	Ceramoporidæ.	Cyclostomata.
Crisinella Hall.	Idmoneidæ.	Cyclostomata.
Cyclopora Prout.	Cycloporidæ.	Cryptostomata.
Cycloporella Ulrich.	Cycloporidæ.	Cryptostomata.
Cyclotrypa Ulrich.	Fistuliporidæ.	Cyclostomata.
Cystodictya Ulrich.	Cystodictyonidæ.	Cryptostomata.
Cystopora Hall.	Entalophoridæ.	Cyclostomata.
Dekayella Ulrich.	Heterotrypidæ.	Trepostomata.
Dekayia Milne-Edwards and Haime.	Heterotrypidæ.	Trepostomata.
Diamesopora Hall.	Rhinoporidæ.	Cryptostomata.
Diastoporina Ulrich.	Diastoporidæ.	Cyclostomata.
Dichotrypa Ulrich.	Cystodictyonidæ.	Cryptostomata.
Dicranopora Ulrich.	Rhinidictyonidæ.	Cryptostomata.
Diploclema Ulrich.	Entalophoridæ.	Cyclostomata.
Diploporaria.	Acanthocladiidæ.	Cryptostomata.
Diplotrypa Nicholson.	Trematoporidæ.	Trepostomata.
Discotrypa Ulrich.	Amplexoporidæ.	Trepostomata.
Dittopora Dybowski.	Constellariidæ.	Trepostomata.
Drymotrypa Ulrich.	Phylloporinidæ,	Cryptostomata.
Eridopora Ulrich.	Fistuliporidæ.	Cyclostomata.
Eridotrypa Ulrich.	Batostomellidæ.	Trepostomata.
Escharopora Hall.	Ptilodictyonidæ.	Cryptostomata.
Eurydictya Ulrich.	Rhinidictyonidæ.	Cryptostomata.
Euspilopora Ulrich.	Rhinidictyonidæ.	Cryptostomata.

Genus.	Family.	Suborder.
Evactinopora Meek and Worthen.	Cystodictyonidæ.	Cryptostomata.
Favicella Hall.	Fistuliporidæ.	Cyclostomata.
Fenestella Lonsdale.	Fenestellidæ.	Cryptostomata.
Fenestralia Prout.	Fenestellidæ.	Cryptostomata.
Fenestrapora Hall.	Fenestellidæ.	Cryptostomata.
Fistulipora McCoy.	Fistuliporidæ.	Cyclostomata.
Glossotrypa Hall.	Fistuliporidæ.	Cyclostomata.
Glyptopora Ulrich.	Cystodictyonidæ.	Cryptostomata.
Goniocladia Etheridge, Jun.	Cystodictyonidæ.	Cryptostomata.
Goniotrypa Ulrich.	Rhinidictyonidæ.	Cryptostomata.
Graptodictya Ulrich.	Ptilodictyonidæ.	Cryptostomata.
Hederella Hall.	Diastoporidæ.	Cyclostomata.
Helicopora Claypole.	Fenestellidæ.	Cryptostomata.
Heliotrypa Ulrich.	Stictoporellidæ.	Cryptostomata.
Helopora Hall.	Arthrostylidæ.	Cryptostomata.
Hemiphragma Ulrich.	Trematoporidæ.	Trepostomata.
Hemitrypa Phillips.	Fenestellidæ.	Cryptostomata.
Hernodia Hall.	Diastoporidæ.	Cyclostomata.
Heterotrypa Nicholson.	Heterotrypidæ.	Trepostomata.
Hexagonella Waagen and Wentzel.	Fistuliporidæ.	Cyclostomata.
Homotrypa Ulrich.	Monticuliporidæ.	Trepostomata.
Homotrypella Ulrich.	Monticuliporidæ.	Trepostomata.
Hyphasmopora Etheridge, Jun.	Rhabdomesontidæ.	Cryptostomata.
Ichthyorachis McCoy.	Acanthocladiidæ.	Cryptostomata.
Idiotrypa Ulrich.	Constellariidæ.	Trepostomata.
Intrapora Hall.	Stictoporellidæ.	Cryptostomata.
Isotrypa Hall.	Fenestellidæ.	Cryptostomata.
Leptotrypa Ulrich.	Heterotrypidæ.	Trepostomata.
Lichenalia Hall.	Rhinoporidæ.	Cryptostomata.
Lichenotrypa Ulrich.	Fistuliporidæ.	Cyclostomata.
Lioclema Ulrich.	Batostomellidæ.	Trepostomata.
Lioclemella Foerste.	Batostomellidæ.	Trepostomata.
Loculipora Hall.	Fenestellidæ.	Cryptostomata.
Lyropora Hall.	Fenestellidæ.	Cryptostomata.
Meekopora Ulrich.	Fistuliporidæ.	Cyclostomata.
Mesotrypa Ulrich.	Monticuliporidæ.	Trepostomata.
Mitoclema Ulrich.	Entalophoridæ.	Cyclostomata.
Monotrypa Nicholson.	Trematoporidæ.	Trepostomata.
Monotrypella Ulrich.	Amplexoporidæ.	Trepostomata.
Monticulipora D'Orbigny.	Monticuliporidæ.	Trepostomata.
Nemataxis Hall.	Rhabdomesontidæ.	Cryptostomata.
Nematopora Ulrich.	Arthrostylidæ.	Cryptostomata.
Nicholsonella Ulrich.	Constellariidæ.	Trepostomata.
Orbipora Eichwald.	Heterotrypidæ.	Trepostomata.
Orthopora Hall.	Rhabdomesontidæ.	Cryptostomata.
Pachydictya Ulrich.	Rhinidictyonidæ.	Cryptostomata.
Paleschara Hall.	Palescharidæ.	Chilostomata.
Peronopora Nicholson.	Monticuliporidæ.	Trepostomata.
Petalotrypa Ulrich.	Amplexoporidæ.	Trepostomata.

Genus.	Family.	Suborder.
Petigopora Ulrich.	Heterotrypidæ.	Trepostomata.
Phacelopora Ulrich.	Phaceloporidæ.	Cyclostomata.
Phænopora Hall.	Ptilodictyonidæ.	Cryptostomata.
Phractopora Hall.	Cystodictyonidæ.	Cryptostomata.
Phyllodictya Ulrich.	Rhinidictyonidae.	Cryptostomata.
Phyllopora King.	Fenestellidæ.	Cryptostomata.
Phylloporina Ulrich.	Phylloporinidae.	Cryptostomata.
Pinacotrypa Ulrich.	Fistuliporidæ.	Cyclostomata.
Pinnatopora Vine.	Acanthocladiidæ,	Cryptostomata.
Polypora McCoy.	Fenestellidæ.	Cryptostomata.
Prasopora Nicholson and Etheridge Jun.	Monticuliporidæ.	Trepostomata.
Prismopora Hall.	Cystodictyonidæ.	Cryptostomata.
Proboscina Audouin.	Diastoporidæ.	Cyclostomata.
Protocrisina Ulrich.	Idmoneidæ.	Cyclostomata.
Proutella Ulrich.	Cycloporidæ.	Cryptostomata.
Ptilocella Simpson.	Cystodictyonidæ.	Cryptostomata.
Ptilodictya Lonsdale.	Ptilodictyonidæ.	Cryptostomata.
Ptilopora McCoy.	Acanthocladiidæ.	Cryptostomata.
Ptiloporella Hall.	Fenestellidæ.	Cryptostomata.
Ptiloporina Hall.	Fenestellidæ.	Cryptostomata.
Ptilotrypa Ulrich.	Stictoporellidæ.	Cryptostomata.
Ramipora Toula.	Acanthocladiidæ.	Cryptostomata.
Reteporidra.	Fenestellidæ.	Cryptostomata.
Reteporina D'Orbigny.	Fenestellidæ.	Cryptostomata.
Reptaria Rolle.	Diastoporidæ.	Cyclostomata.
Rhabdomeson Young and Young.	Rhabdomesontidæ.	Cryptostomata.
Rhinidictya Ulrich.	Rhinidictyonidæ.	Cryptostomata.
Rhinopora Hall.	Rhinoporidæ.	Cryptostomata.
Rhombopora Meek.	Rhabdomesontidæ.	Cryptostomata.
Rhopalonaria Ulrich.	Rhopalonariidæ.	Ctenostomata.
Scalaripora Hall.	Cystodictyonidæ.	Cryptostomata.
Scenellopora Ulrich.	Ceramoporidæ.	Cyclostomata.
Sceptropora Ulrich.	Arthrostylidæ.	Cryptostomata.
Selenopora Hall.	Fistuliporidæ.	Cyclostomata.
Semicoscinium Prout.	Fenestellidæ.	Cryptostomata.
Semiopora Hall.	Cystodictyonidæ.	Cryptostomata.
Septopora Prout.	Acanthocladiidæ.	Cryptostomata.
Spatiopora Ulrich.	Ceramoporidæ.	Cyclostomata.
Sphragiopora Ulrich.	Sphragioporidæ.	Cryptostomata.
Stellipora Hall.	Constellariidæ.	Trepostomata.
Stenopora Lonsdale.	Batostomellidæ.	Trepostomata.
Stictopora Hall.	Stictoporellidæ.	Cryptostomata.
Stictoporella Ulrich.	Stictoporellidæ.	Cryptostomata.
Stictoporina Hall and Simpson.	Ptilodictyonidæ.	Cryptostomata.
Stictotrypa Ulrich.	Rhinoporidæ.	Cryptostomata.
Stomatopora Bronn.	Diastoporidæ.	Cyclostomata.
Streblotrypa Ulrich.	Rhabdomesontidæ.	Cryptostomata.
Stromatotrypa Ulrich.	Trematoporidæ.	Trepostomata.
Strotopora Ulrich.	Fistuliporidæ.	Cyclostomata.
Synocladia King.	Acanthocladiidæ.	Cryptostomata.

Genus.	Family.	Suborder.
Tæniodictya Ulrich.	Stictoporellidæ.	Cryptostomata.
Tæniopora Nicholson.	Cystodictyonidæ.	Cryptostomata.
Thallostigma Hall.	Batostomellidæ.	Trepostomata.
Thamniscus King.	Fenestellidæ.	Cryptostomata.
Thamnotrypa Hall.	Cystodictyonidæ.	Cryptostomata.
Trematella Hall.	Batostomellidæ.	Trepostomata.
Trematopora Hall.	Trematoporidæ.	Trepostomata.
Trigonodictya Ulrich.	Rhinidictyonidæ.	Cryptostomata.
Tropidopora Hall.	Rhabdomesontidæ.	Cryptostomata.
Unitrypa Hall.	Fenestellidæ.	Cryptostomata.
Vinella Ulrich.	Ascodictyonidæ.	Ctenostomata.
Worthenopora Ulrich.	Cycloporidæ.	Cryptostomata.

LIST OF INVALID GENERIC NAMES.

Actinostoma Young and Young=Fenestella Lonsdale.
Alecto Lamouroux (preoccupied). Now Stomatopora Bronn.
Anastomopora Simpson=Reteporidra.
Arcanopora Vine=Cystodictya Ulrich.
Archimedipora D'Orbigny=Archimedes Owen.
Arthronema Ulrich (preoccupied). Now Arthrostylus Ulrich.
Carinella Etheridge, Jun. Now Goniocladia Etheridge, Jun.
Carinopora Nicholson=Semicoscinium Prout.
Coscinotrypa Hall and Simpson=Coscinium Keyserling.
Cryptopora Nicholson=Semicoscinium Prout.
Cycloporina Simpson=Semicoscinium Prout.
Dendricopora De Koninck=Ptilopora McCoy.
Dianulites Eichwald.
Diastopora of authors (not Lamouroux)=Berenicea Lamouroux.
Diastoporella Vine=Berenicea Lamouroux.
Didymopora Ulrich=Fistulipora McCoy.
Diplopora Young and Young=Diploporaria.
Dybowskia Waagen and Pichl=Fistulipora McCoy.
Dybowskiella Waagen and Pichl=Fistulipora McCoy.
Enallopora D'Orbigny. Not recognized.
Fenestrellina D'Orbigny. Not recognized.
Fistulicella Simpson=Pinacotrypa Ulrich.
Fistuliporella Simpson=Fistulipora McCoy.
Fistuliporidra Simpson=Favicella Hall.
Fistuliporina Simpson=Pinacotrypa Ulrich.
Flabelliporella Simpson=Polypora McCoy.
Flabelliporina Simpson=Fenestella Lonsdale.
Geinitzella Waagen and Wentzel=Batostomella Ulrich.
Glauconome of authors (not Goldfuss)=Pinnatopora Vine.
Heterodictya Nicholson=Ptilodictya Lonsdale.
Lichenalia Hall (in part)=Fistulipora McCoy.
Lyroporella Simpson=Lyropora Hall.
Lyroporidra Simpson=Lyropora Hall.
Lyroporina Simpson=Lyropora Hall.
Nebulipora McCoy. Not recognized.
Nicholsonia Davis=Hederella Hall.
Nicholsonia Waagen and Wentzel=Escharopora Hall.
Odontotrypa Hall=Buskopora Ulrich.

Omniretepora D'Orbigny. Not recognized.
Orbitulites Eichwald (preoccupied). Now Orbipora Eichwald.
Penniretepora D'Orbigny. Not recognized.
Pileotrypa Hall=Eridopora Ulrich.
Pinnaporella Simpson (1895)=Ptiloporina Hall.
Pinnaporella Simpson (1897)=Ptiloporella Hall.
Pinnaporina Simpson=Ptiloporina Hall.
Polyporella Simpson=Polypora McCoy.
Protoretepora De Koninck=Polypora McCoy.
Pteropora Hall=Tæniopora Nicholson.
Ptilionella Hall=Reptaria Rolle.
Ptychonema Hall and Simpson=Monotrypa Nicholson.
Reteporella Simpson=Reteporidra.
Rosacilla Roemer=Berenicea Lamouroux.
Sagenella Hall=Berenicea Lamouroux.
Stictocella Simpson=Cystodictya Ulrich.
Stictoporidra Simpson=Tæniopora Nicholson.
Subretepora D'Orbigny. Not recognized.
Tabulipora Young=Stenopora Lonsdale.
Tectulipora Hall=Loculipora Hall.
Tectuliporella Simpson=Isotrypa Hall.
Thamnocella Simpson=Drymotrypa Ulrich.
Thamnopora Hall (preoccupied). Now Thamnotrypa Hall.
Tubuliclidia Lonsdale=Stenopora Lonsdale.

DISTRIBUTION.

GEOGRAPHIC DISTRIBUTION

The most favored part of the earth for reading Paleozoic history is the continent of North America. On this continent the deposition of sediments proceeded under such fortunate conditions in the Paleozoic ages and the sediments have since been so little disturbed that their succession is easily made out. A large inland sea occupied the interior of the continent flanked on the east and west by more or less continuing barriers. The wide area of this sea, coupled with its comparative shallowness, provided conditions highly favorable for an abundant marine life, and especially for bryozoa. In the region of the eastern barrier, now the eastern highland of the continent, judging from the fossil remains hitherto made known, the conditions were often, perhaps generally, unfavorable for bryozoan life and only locally are the remains of this class found in the Paleozoic rocks of the Appalachian region; but the wide sea stretching for a thousand or more miles westward from the eastern barrier, gradually filling with the detritus from the earlier-formed or primeval rocks, supported a wealth of marine forms, among which the bryozoa formed a leading element.

The Eurasian land mass presents many surface exposures of Paleozoic age, but they are to a greater or less extent disconnected. In Asia the Salt Range of India has yielded Carboniferous bryozoa with its other fossils. The region of the Ural Mountains, the regions bordering upon the Baltic Sea, England, and Scotland, contain most of the Paleozoic strata which have thus far yielded bryozoa. Three or four times as many species have been made known from North America as from all the rest of the world.

The earliest bryozoa, so far as we now know, are in the Chazy. They are few in numbers, but this may be because they have not been systematically collected and studied.

The Trenton period, in all its subdivisions, Stones River (Birdseye), Black River, and Trenton proper (including the Galena), is a vast tomb of bryozoa. The seas seem to have swarmed with these minute creatures. In eastern Canada and New York, thence stretching through Ontario to the northwest into Wisconsin, Minnesota, and Manitoba, are deposits following roughly the outline of the northern or northeastern border of the interior sea. Deposits formed along what was soon to appear as an island or islands—the Cincinnati anticline—are also open to our inspection in Kentucky and Tennessee. At isolated points in Illinois and Missouri Trenton deposits are also exposed. Also isolated tracts of early Silurian times are exposed in the western highland. The Trenton is preeminently a continental formation. Scarcely anywhere between the two highlands does the drill fail to show Trenton if sent deep enough.

The succeeding period, the Cincinnati—by some authors still termed the Hudson River group, though the name seems to be a misnomer—is again a formation of continental extent, in which bryozoa flourished. The deposits in eastern New York along the Hudson River, supposedly of this age, have yielded no bryozoa and few other fossils. The Utica shale and the Lorraine and Pulaski shales and sandstones in the region of the Mohawk Valley and southeast of Lake Ontario were formed under conditions not generally propitious for bryozoa. But in the interior, in the region of the Cincinnati anticline, conditions were congenial and bryozoa flourished. Ohio, Kentucky, Indiana, and some limited areas in Illinois, Minnesota, Wisconsin, and Iowa, all yield well-preserved bryozoa and usually in great abundance. Outcrops occur also in Canada and as far east as Anticosti Island, in the gulf of St. Lawrence.

The Upper Silurian deposits in this country are exposed rather locally. Many of them were formed under conditions which precluded bryozoan life, but in some bryozoa are exceedingly abundant. From the Medina and Waterlime no bryozoa have been made known. The Clinton has yielded a considerable number both in New York and in Ontario, as well as around the borders of the Cincinnati anticline, but they are seldom finely preserved. The Niagara deposits are generally of a character unfavorable to the preservation of its fauna, but there are two good exceptions—an area in western New York, typically exposed at Lockport, and one in the vicinity of Waldron, Indiana, The Lower Helderberg, succeeding the Niagara, is local in its distribution. But its exposures in Albany and Schoharie counties, New York, have yielded a large number of bryozoa, which, however, are not favorably preserved for microscopic study. By some writers the Lower Helderberg is considered Devonian. Its bryozoan fauna indicates relationship about equally with both Niagara and Upper Helderberg.

The Devonian age was ushered in by conditions unfavorable for bryozoan life. The Onondaga and Saliferous have yielded no bryozoa. The Upper Helderberg, in a belt extending from eastern New York west into Ontario, has proved rather prolific. The succeeding formation, the Hamilton, is preeminently a bryozoan epoch. In western New York, Ontario, Michigan, Manitoba, and Iowa its deposits are characterized generally by an abundance of bryozoa in a good state of preservation. A coral reef in the ancient sea, now forming the obstruction in the Ohio River at the Falls of the Ohio, afforded a hospitable abode for immense numbers of bryozoa. The later formations of the Devonian, best displayed in New York and Pennsylvania, have yielded very few bryozoa. None have yet been described.

For the early part of the Carboniferous age the name Mississippian seems to be gradually displacing in this country the terms Subcarboniferous and Lower Carboniferous, which have been so variously used that their use now produces ambiguity. The Mississippian series is characterized in North America by limestone formations, mainly located in the Mississippi Valley, though deposits also occur, not so sharply differentiated, in the trough between the Cincinnati anticline and the eastern highland, to which such local names as Waverly, Marshall, and Maxville limestone have been applied. Being limestone formations, they are, as might be expected, very prolific of bryozoa, some, however, much less so than others. The earlier formations, the Kinderhook and Burlington, also have yielded but a limited number of bryozoa, but this may be due to the comparatively limited areas of outcrop and to lack of systematic collecting.

In the Coal Measures conditions producing brackish or fresh water and marine formations alternated irregularly. Naturally, marine fossils are quite local in occurrence. But among the marine fossils bryozoa hold their place extremely well, though they are much reduced from the opulence of the Mississippian series in kinds and numbers.

By the close of the Coal Measures the interior sea had been well-nigh effaced, and in the West and Southwest only—Kansas and Texas—do we find Permian deposits of any considerable extent. But few bryozoa are known from these deposits; whether this is due to their absence or to lack of collecting we do not know.

During later geological times marine deposits in this country are limited to the Atlantic and Gulf Coastal Plain, to a few favored areas in the Great Plains and Rocky Mountain regions, and the territory bordering the Pacific. Comparatively few bryozoa of later age have been made known, though the indications are that a large number of species will be the reward of thorough collecting. In central and southern Europe Mesozoic and Tertiary beds often abound in bryozoa.

GEOLOGIC DISTRIBUTION.

Though the materials for the history of the biologic and phylogenetic development of the Paleozoic bryozoa are to be found in the rocks of the North American continent, scarcely a beginning has yet been made. Before this history can be written with any degree of correctness, the preliminary work of collecting, studying, classifying, and comparing the faunas of successive formations must be well under way. This work is still in its infancy. The only worker in this field who has yet cared to do any generalizing is Mr. E. O. Ulrich, and he has not ventured very far.

A study of the tables given farther on will afford some indications of the rich results which the future may be expected to bring. It is not possible to use the numbers there given determinatively for generalizations, for while the tables give the numbers of all species and genera thus far described and recognized as valid, there remains in various collections, public and private, a very large number of undescribed species and some new genera. Therefore, any conclusions based upon the numbers in the tables can at best be merely tentative.

No bryozoa have yet been known from the Cambrian, or the lowest of the Ordovician formations—the Calciferous. Whether this means that they are actually absent, or that they are so rare as not yet to have fallen under collectors' eyes, can not be said. From the Chazy rocks come the oldest unequivocal bryozoa, three species of Phylloporina, one of Rhinidictya, and one of Stictopora, all cryptostomatous genera, with indications of the presence of some Trepostomata. It is probable that future collecting will very much increase this meager list, though good localities seem to be rare.

In the Trenton period the bryozoa occur in the greatest profusion. The few Chazy forms have multiplied, as if by magic, into the large Trenton fauna. One of the missing links in paleontological history doubtless occurs at this point. The Trenton formation stands second in the number of described species, though it will probably in the end lead. Not less than 80 species are known that await description. The Trepostomata form half the fauna. The Cryptostomata rank next. The latter soon became and continued the predominant type of the Paleozoic eon, yielding their supremacy in later times to the Chilostomata, which are represented doubtfully in the Paleozoic seas by the single genus Paleschara. In the Trenton the Cyclostomata are fairly well represented—the Ctenostomata scarcely at all—but this may be because ctenostomatous bryozoa rarely admit of preservation as fossils. Of the Ctenostomata only six species have been described, all Eopaleozoic; but about twenty other undescribed species are known, some of which are from Neopaleozoic formations. Among the Cyclostomata the Ceramoporidæ and Diastoporidæ predominate during the Trenton, the Monticuliporidæ and Trematoporidæ among the Trepostomata, the Arthrostylidæ and Rhinidictyonidæ among the Cryptostomata.

The succeeding period, the Cincinnati, is very similar to its predecessor in its bryozoan fauna, the various suborders maintaining about the same relative representation. About one hundred undescribed species are known, and it is probable that many species still await discovery. The predominant families are the Ceramoporidæ among the Cyclostomata, the Monticuliporidæ and Heterotrypidæ among the Trepostomata, and the Ptilodictyonidæ and Rhinidictyonidæ among the Cryptostomata.

The Anticosti group forms the connecting link between the Ordovician and Silurian eras. In this formation the Trepostomata will be found fairly numerous. A few species have been described by Billings, but were so meagerly characterized that we are unable to place them generically, and hence have omitted them from our tables. The Cryptostomata appear to predominate, though when the fauna shall have been thoroughly studied the Trepostomata may be found to be still slightly in the lead.

From the Medina, which is practically limited to the State of New York, no bryozoa have been made known. The Clinton contains but few bryozoa, and these are generally not well preserved. The Trepostomata have now dropped from first to second place, the Cryptostomata are very much in the lead, the Cyclostomata rare. The Ptilodictyonidæ now reach their maximum and are the predominant family both in number of species and in individuals.

With the Niagara a decided change has come. Large forms are comparatively rare; even among the Trepostomata the tendency to diminutiveness is very noticeable. The Cryptostomata greatly predominate; the Cyclostomata and Trepostomata are about equally represented. The Ceramoporidæ are giving place to the Fistuliporidæ, probably their descendants. Among the Trepostomata the Batostomellidæ, the most enduring family of the bryozoa in Paleozoic time, predominate. Among the Cryptostomata the Fenestellidæ lead, and from this time on are the chief family.

The Lower Helderberg is similar in its bryozoan fauna to the Niagara, but the Fenestellidæ have been increasing rapidly and now form nearly one-third of the bryozoa. No Cyclostomata except those belonging to the Fistuliporidæ and Ceramoporidæ have been recorded.

The Upper Helderberg fauna emphasizes the tendency begun in the Niagara and strengthened in the Lower Helderberg—namely, the diminution of the Trepostomata and the augmentation of the Cryptostomata. The Trepostomata are now of little importance; the Fenestellidæ far outweigh all other families and constitute considerably over one-half the fauna.

The Hamilton fauna excels all others at present in the number of described species and genera represented. Probably a large amount of synonymy still exists which time will eliminate. However, future discoveries will probably disclose a number of new species more than sufficient to offset the loss by reduction from synonyms. The Trepostomata are the least important element, and are about ready to disappear. Naturally they present a jumble of features which makes them difficult to classify along with those of Eopaleozoic age. The Fistuliporidæ have become wonderfully numerous in species and genera. The Batostomellidæ are at their maximum; so also are the Fenestellidæ. The Falls of the Ohio has proved, probably, to be the most prolific single locality for bryozoa in the world. The Cystodictyonidæ are also at their maximum. In fact, the Hamilton may be said to mark the culmination of Paleozoic bryozoa.

In the interval between the Hamilton and the Osage, the next formation in which the bryozoa form a large element of the fauna, several formations were laid down under conditions commonly unfavorable for bryozoan life, though future collections may materially alter this conclusion. The earliest of the Mississippian series, the Kinderhook, has thus far shown but few bryozoa. The earlier of the Osage formations, the Burlington, has also thus far proved poor collecting ground, but the Keokuk and Warsaw, following, have an abundant bryozoan fauna. At Warsaw, Ill., the Warsaw formation bears a close relationship to the Keokuk fauna, but at other points the Warsaw seems more closely allied to the St. Louis, following it, than to the Keokuk, preceding. In these formations the Cryptostomata are monopolists, but few Cyclostomata and Trepostomata occurring. So it continues throughout the Mississippian series. The Fenestellidæ continue to be the predominant family. As is the case in other tribes of the animal kingdom, when a type of structure culminates, the family evolves a great many variations, some curious, and even grotesque, ere it reaches its extinction. The St. Louis, an almost solid limestone formation, has not been favorable for the preservation of bryozoa. The Ste. Genevieve, which differs from the St. Louis in having less limestone and more shale, has a considerable bryozoan fauna, with the Fenestellidæ still much in excess of the other groups. In the Chester the Fenestella type produces two curious genera in form of growth, the Lyropora and Archimedes, both of which must have been beautiful objects when living.

It might be expected that the Coal Measures, from the mode of their formation, would not yield many bryozoa. Not many individuals comparatively have been found, yet 62 species assigned to 15 genera have been recorded. The Fenestellidæ are still the most numerous. The Permian, perhaps because it has been but little investigated, has but few species. The close of the Paleozoic sees the extinction of its bryozoan fauna. The next fauna in America, the bryozoa from the Cretaceous marl of New Jersey, wears an entirely different facies. The Trepostomata and Cryptostomata are scarcely, if at all, represented; the Cyclostomata are numerous, and the Chilostomata even more so.

LIST OF LOCALITIES.

The following list gives the principal localities from which bryozoa have been recorded. The asterisk (*) has been placed before the most important and typical localities.

ORDOVICIAN.

CHAZY.

Canada.—Mingan.
Vermont.—Granville.
New York.—*Chazy, Galway.

TRENTON.

STONES RIVER (BIRDSEYE) DIVISION.

Lake Huron.—St. Joseph Island.
New York.—*Watertown.
Illinois.—*Dixon and Calhoun County.
Wisconsin.—Mineral Point, Janesville, Beloit.
Minnesota.—*Minneapolis, *St. Paul, *Cannon Falls, Chatfield, Fountain, Lanesboro, Preston.
Kentucky.—*High Bridge, Frankfort.
Tennessee.—Knoxville, *Lebanon, *Murfreesboro, Shelbyville, Lavergne, Columbia, Franklin.

BLACK RIVER DIVISION.

New York.—Watertown, Chazy.
Wisconsin.—Beloit.
Minnesota.—*Minneapolis, *St. Paul; Cannon Falls, Fountain, Preston, Lanesboro, and other localities in Goodhue and Fillmore counties.
Iowa.—Decorah.
Illinois.—Rockton.

TRENTON DIVISION.

Quebec.—Montreal, Joliette, Quebec.
Ontario.—*Ottawa, *Peterborough, Belleville.
Vermont.—Chimney Point, Bridport.
New York.—*Trenton Falls, Middleville, Jacksonburg, *Watertown, Lowville, Turin, Little Falls, Chazy.

Manitoba.—St. Andrews, East Selkirk; Big, Deer, and Little Black islands, in Lake Winnipeg.

Minnesota.—*St. Paul, *Cannon Falls, Kenyon, Berne, Hader, Mantorville, and localities in Ramsay, Goodhue, Olmstead, and Fillmore counties.

Michigan.—Escanaba River.

Wisconsin.—Neenah.

Illinois.—Rockton, Calhoun County, Alexander County (Thebes).

Kentucky.—*Covington, *Burgin, *Frankfort, Harrodsburg, Paris, Georgetown, Lexington, Nicholasville, Danville, Colby, Mercer County, Garrard County.

Tennessee.—*Nashville, Franklin, Mt. Pleasant, and many other localities in the central basin.

Nevada.—Silver Canyon, Pahranagat Range.

CINCINNATI.

UTICA DIVISION.

Canada.—Ottawa.

New York.—Utica, Rome.

Ohio.—*Cincinnati, Milford, Loveland, Batavia.

Indiana.—Numerous localities in the southeastern corner of the State.

Kentucky.—*Covington, *Newport, Maysville, Augusta, Frankfort, Harrodsburg.

Iowa.—Graf, Lantnerville.

Minnesota.—Fillmore County.

LORRAINE DIVISION.

Ontario.—Toronto, Weston, River Credit.

New York.—Turin, Lorraine, Pulaski.

Ohio.—*Cincinnati, *Hamilton, *Lebanon, Mason, Morrow, Loveland, and other localities in Hamilton, Clermont, Warren, and Butler counties.

Indiana.—Numerous localities in the southeastern part of the State.

Kentucky.—*Covington, *Newport, Maysville, McKinneys, and many localities in Boyle, Lincoln, and other counties in the central part of the State.

Tennessee.—*Nashville, *Columbia, Mt. Pleasant, Swan Creek, and many localities in middle Tennessee.

RICHMOND DIVISION.

Anticosti Island (*Gulf of St. Lawrence*).

Ontario.—Toronto, Oakville, ?Weston.

Ohio.—*Blanchester, Westboro, *Oregonia, *Waynesville, Middletown, *Oxford, Clarksville, Hanover, Camden, Jacksonburg, Lynchburg, and other localities in Highland, Brown, Clinton, Warren, and Butler counties.

Indiana.—*Richmond, *Versailles, Osgood, Weisburg, and other localities in the southeastern part of the State.

Kentucky.—*Lebanon, Raywick, Mount Washington, Richmond, and localities in Marion, Washington, and Nelson counties.

Illinois.—*Wilmington, Savannah, Sterling, South Elgin.

Wisconsin.—Delafield, Iron Ridge.

Minnesota.—Spring Valley.

Manitoba.—Stony Mountain.

SILURIAN (UPPER).

ANTICOSTI.

Anticosti Island (*Gulf of St. Lawrence*).—The lower part of the Anticosti occupies the interval between the Richmond and the Clinton, probably contemporaneous with the Medina. The upper part is the equivalent of the Clinton.

CLINTON.

Ontario.—Flamborough Head, Dundas, *Hamilton.

New York.—Wayne County.

Tennessee.—Cumberland Gap.

Alabama.—Collinsville.

Ohio.—*Dayton, *Eaton, Centreville, *Fair Haven, near New Carlisle, Belfast, Todds Fork, and other localities in Clinton and Preble counties.

Indiana.—Hanover.

NIAGARA.

Ontario.—Hamilton, Thorold, Flamborough Head.

New York.—*Lockport, Rochester, Reynales Basin, Gasport.

Ohio.—Cedarville.

Indiana.—*Waldron, *Osgood.

Illinois.—Sterling, Savannah, South Elgin, Chicago.

Tennessee.—Localities in Perry, Hardin, Hickman, and Wayne counties.

LOWER HELDERBERG.

New York.—* Clarksville, * Schoharie, Catskill.

Tennessee.—Localities in Perry and Hickman counties.

DEVONIAN.

ORISKANY (?).

None recorded except from the Gaspé Limestone at Indian Cove, Gaspé Bay, and Grand Creve, Canada.

UPPER HELDERBERG (CORNIFEROUS).

New York.—Onondaga Valley, Cherry Valley, near Caledonia, Stafford, Schoharie, Thompsons Lake (Albany County), Waterville, Falkirk, near Buffalo, * Le Roy.

Ontario.—Port Colborne, Port Jarvis, * Walpole, Wainfleet.

Ohio.—Sandusky, Columbus, Sylvania, Marblehead, Whitehouse (Lucas County).

HAMILTON.

New York.—Cazenovia, near Leonardsville, New Berlin, Delphi, Nortons Landing (Cayuga Lake), Owasco Lake, Lodi Landing (Seneca Lake), Bellona, Hopeton (Yates County), * Canandaigua, Monteiths Point (Lake Canandaigua), Fall Brook, near Lake Canandaigua, West Bloomfield, near Muttonville (Ontario County), * Moscow, * York, near Geneseo, Darien Center, Pavilion, * West Hamburg, Alden, * Eighteenmile Creek, and other localities in Cayuga, Seneca, Ontario, Livingston, and Erie counties.

Ontario.—* Widder (now Thedford), Arkona, Bartletts Mills, West Williams.

Canada.—Lake Winnepegosis, Hay River, Athabasca River, near Dawson Bay, Red Deer River.

Michigan.—* Alpena, Thunder Bay Island, Partridge Point (near Alpena), * Petoskey.

Indiana.—Utica, * Falls of the Ohio.

Illinois.—Rock Island, Andalusia.

Iowa.—* Buffalo, Davenport, Muscatine, Independence, Hackberry, Rockford, Iowa City.

Wisconsin.—Milwaukee.

Missouri.—Calloway County.

MISSISSIPPIAN.

KINDERHOOK.

Iowa.—Marshalltown.

BURLINGTON.

Iowa.—Burlington.

Illinois.—Quincy, Montezuma, Sagetown (Henderson County), Calhoun County.

WAVERLY (=KINDERHOOK TO KEOKUK).

Ohio.—Lodi, Richfield, Sciotoville, Newark, Burbank, Moots Run, Cuyahoga County.

Michigan.—Hillsdale.

KEOKUK.

Illinois.—*Nauvoo, Warsaw, near Whitehall, Jersey County, near Plymouth, Greene County, Appanoosa (near Quincy).

Iowa.—* Keokuk, * Bentonsport.

Missouri.—Lagrange, St. Francisville, Clark County.

Kentucky.—* Kings Mountain, near Somerset, Button Mole Knob (near Louisville).

WARSAW.

Indiana.—Spergen Hill.

Illinois.—*Warsaw, Columbia and other localities in Monroe County, near New Providence.

Missouri.—Barrett's (St. Louis County), Curryville.

ST. LOUIS.

Illinois.—Alton, Waterloo, Prairie du Rocher.

Missouri.—St. Louis, Ste. Genevieve.

Kentucky.—Eddyville, Elizabethtown, Somerset, Colesburg, and other localities in Caldwell, Lyon, and Crittenden counties.

Tennessee.—Clarksville.

West Virginia.—Between Fort Springs and Ronceverte.

STE. GENEVIEVE.

Iowa.—Pella.

Missouri.—Ste. Genevieve.

Illinois.—Rosiclare.

Kentucky.—Princeton, Cerulean Springs, and other localities in Trigg and Caldwell counties.

CHESTER.

Ohio.—Newtonville.

Illinois.—*Chester, Kaskaskia (now Fort Gage), *Red Bud, Ruma, Baldwin, Rockwood, Anna.

Kentucky.—*Sloans Valley (or Tateville), Grayson Springs, Litchfield, Stephensport, Smithland, and localities in Crittenden, Caldwell, Livingston, Meade, Pulaski, and Jackson counties.

Alabama.—Huntsville.

CARBONIFEROUS.

COAL MEASURES.

Ohio.—Newark, Flint Ridge, Bald Hill.

Illinois.—Lasalle, *Seville, Knox County, Peoria, Danville, Springfield and other localities in Sangamon County, Caseyville, Sparta, near Centralia, and localities in Macoupin, Jasper, and Fayette counties.

Iowa.—Red Oak.

Missouri.—Kansas City.

Nebraska.—Nebraska City, Wyoming.

Kansas.—Manhattan, Fort Riley, Greenwood County.

Indian Territory.—Poteau Mountain.

PERMIAN.

Kansas.—Cottonwood Valley and other unrecorded localities.

New Mexico.—Guadalupe Mountains, Jornada de Muerto.

CARBONIFEROUS (division not specified).

Nova Scotia.—Windsor, Stewiacke.

Montana.—Mystic Lake.

New Mexico.—Organ Mountains.

Arizona.—White Mountains, confluence White Mountain and Black rivers.

Texas.—Fort Belknap.

CRETACEOUS.

New Jersey.—Timber Creek, Mullica Hill, Brownsville, Vincentown.

Mississippi.—Seven miles below Yazoo.

Arkansas.—Pulaski County (10 miles south of Little Rock).

EOCENE.

Maryland.—Upper Marlboro.

Virginia.—"Rock's bridge" (may not be in Virginia) and other localities.

North Carolina.—Wilmington.

South Carolina.—Eutaw, Wantoot, Charleston.

Alabama.—Claiborne.

Mississippi.—Vicksburg.

MIOCENE.

Maryland.—St. Mary's River, Jones' Wharf.

Virginia.—Williamsburg, Petersburg, Evergreen, Yorktown, Carter's Landing.

PLIOCENE.

South Carolina.—Darlington District, Giles Bluff on Peedee River, Smith's on Goose Creek. (Note.—Holmes considered these deposits of Pliocene age. Gabb and Horn think them Miocene.)

POST-PLIOCENE.

South Carolina.—Charleston.

California.—Santa Barbara. (See Gabb and Horn, Journal Academy Natural Sciences Philadelphia, series 2, V, p. 179.)

SUCCESSION OF BRYOZOAN FAUNAS.

The subjoined table is designed to show the succession of bryozoan faunas. The formations in the same column do not always have the same taxonomic rank, as now generally regarded. It is to be noted that usage in such matters is not uniform and is probably in a transitional stage.

Table showing the occurrence of bryozoa by formations.

Neocene	Pliocene		Not many known in North America; very abundant in Europe.
	Miocene		
Eocene			
Cretaceous			A moderate number known.
Juratrias			None known.
Carboniferous	Permian		A limited number.
	Upper Coal Measures		A fair number.
	Lower Coal Measures		
	Conglomerate		None known.
Mississippian	Chester	Upper	Abundant.
		Middle (Lyropora beds)	
		Lower (Kaskaskia limestone).	
		Big Clifty (=Aux Vases) sandstone.	None known.
	St. Louis	Ste. Genevieve limestone	A fair number.
		St. Louis limestone	Rather few.
		Warsaw beds	Abundant.
	Osage	Keokuk	
		Upper Burlington	Few.
		Lower Burlington	
	Kinderhook	Choteau limestone	Very few known.
		Hannibal shale	
		Louisiana limestone	
Devonian	Chemung		Very few known.
	Hamilton		Abundant.
	Upper Helderberg		
	Oriskany		Very few known.
Silurian (Upper)	Lower Helderberg		Abundant.
	Onondaga		None known.
	Niagara	Lockport[1]	Abundant.
		Rochester[1]	
		Clinton and Anticosti	A moderate number.
		Medina	None known.
Ordovician	Cincinnati	Richmond	Very abundant.
		Lorraine	
		Utica	
	Trenton	Trenton	
		Black River	
		Stones River	
	Chazy		A few known.
	Calciferous		None known.
Cambrian			Do.

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[1] Names adopted by the United States Geological Survey for formations formerly called Niagara limestone and Niagara shale, respectively. In this work the term Niagara refers to these two formations taken together and excluding Clinton and Medina.

LISTS OF SPECIES.

CHAZY.

Phylloporina aspera (Hall).
gracilis (Hall).
incepta (Hall).
Rhinidictya fenestrata (Hall).
Stenopora ?? adherens Billings.
?? patula Billings.
Stictopora ? glomerata Hall.

TRENTON.

	Stones River.	Black River.	Trenton.
Amplexopora ? discoidea (Nicholson)			×
Anolotichia impolita (Ulrich)	×		
Arthroclema armatum Ulrich			×
billingsi Ulrich			×
cornutum Ulrich		×	
pulchellum Billings			×
striatum Ulrich		×	
Arthropora bifurcata Ulrich		×	
reversa Ulrich			×
simplex Ulrich	×	×	
Arthrostylus conjunctus Ulrich		×	
obliquus Ulrich	×		
tenuis (James)			×
Aspidopora calycula (James)			×
elegantula Ulrich			×
parasitica Ulrich	×	×	
Atactoporella ? crassa Ulrich			×
insueta Ulrich		×	
ramosa Ulrich		×	
typicalis-præcipta Ulrich		×	
Batostoma canadense (Foord)		×	×
? decipiens Ulrich	×	×	
fertile Ulrich	×		
fertile-circulare Ulrich	×		
humile Ulrich			×
magnoporum Ulrich		×	
minnesotense Ulrich		×	
montuosum Ulrich		×	
superbum (Foord)			×
varium Ulrich		×	
winchelli (Ulrich)		×	
winchelli-nodosum Ulrich		×	
winchelli-spinulosum Ulrich		×	
Berenicea minnesotensis Ulrich	×	×	

Lists of species—Continued.

TRENTON—Continued.

	Stones River.	Black River.	Trenton.
Bythopora alcicornis Ulrich		×	
herricki Ulrich		×	
Bythotrypa laxata (Ulrich)	×	×	×
Callopora ampla Ulrich		×	×
angularis Ulrich	×		
? crenulata Ulrich		×	×
dumalis Ulrich	×	×	
goodhuensis Ulrich			×
incontroversa Ulrich	×		
multitabulata (Ulrich)		×	×
pulchella Ulrich		×	
pulchella-persimilis Ulrich		×	
undulata Ulrich		×	
Ceramophylla frondosa Ulrich		×	
Ceramoporella inclusa Ulrich	×	×	×
interporosa Ulrich			×
Chætetes ?? rugosus Hall			×
Cœloclema trentonense (Ulrich)			×
Constellaria fischeri Ulrich			×
varia Ulrich			×
Crepipora perampla Ulrich	×		
simulans Ulrich			×
spatiosa Ulrich			×
subæquata Ulrich		×	
venusta (Ulrich)			×
Dekayella prænuntia Ulrich		×	
prænuntia-echinata Ulrich		×	
prænuntia-multipora Ulrich		×	
prænuntia-nævigera Ulrich		×	
prænuntia-simplex Ulrich	×	×	
trentonensis (Ulrich)			×
Diastoporina flabellata Ulrich			×
Diploclema trentonense Ulrich			×
Diplotrypa limitaris Ulrich			×
neglecta Ulrich			×
westoni Ulrich			×
Drymotrypa dichotoma Ulrich			×
Eridotrypa briareus (Nicholson)			×
exigua Ulrich			×

Lists of species—Continued.

TRENTON—Continued.

	Stones River.	Black River.	Trenton.
Eridotrypa mutabilis Ulrich			×
mutabilis-minor Ulrich			×
trentonensis (Nicholson)			×
Escharopora angularis Ulrich	×		
briareus (Ulrich)	×		
confluens Ulrich		×	
libana (Safford)	×		
? limitaris Ulrich	×	×	
ramosa (Ulrich)	×		
recta Hall			×
recta-nodosa Hall			×
subrecta (Ulrich)		×	
Eurydictya calhounensis Ulrich			×
multipora (Hall)		×	×
Helopora alternata Ulrich		×	
divaricata Ulrich	×		
mucronata Ulrich			×
quadrata Ulrich			×
spiniformis (Ulrich)	×		
Hemiphragma irrasum (Ulrich)	×	×	×
ottawense (Foord)		×	×
tenuimurale Ulrich			×
Homotrypa ? arbuscula Ulrich	×		
callosa Ulrich			×
exilis Ulrich	×		
? intercalaris Ulrich		×	
minnesotensis Ulrich	×	×	
minnesotensis-montifera Ulrich		×	
separata Ulrich	×		
? similis Foord			×
subramosa Ulrich		×	
subramosa-insignis Ulrich			×
tuberculata Ulrich		×	
Homotrypella granulifera (Ulrich)			×
instabilis Ulrich		×	
multiporata Ulrich		×	
mundula Ulrich			×
? ovata Ulrich		×	×
? subgracilis Ulrich		×	

Lists of species—Continued.

TRENTON—Continued.

	Stones River.	Black River.	Trenton.
Leptotrypa ? acervulosa Ulrich			×
? claviformis Ulrich		×	
? hexagonalis Ulrich	×		
informis Ulrich	×		
Mesotrypa discoidea Ulrich			×
infida (Ulrich)		×	
quebecensis (Ami)			×
regularis (Foord)			×
? rotunda Ulrich			×
selkirkensis Whiteaves			×
? spinosa Ulrich		×	
whiteavesi (Nicholson)			×
Mitoclema cinctosum Ulrich	×		
? mundulum Ulrich			×
Monotrypa cumulata Ulrich			×
intabulata Ulrich			×
magna Ulrich	×		
rectimuralis Ulrich			×
undulata (Nicholson)			×
Monticulipora arborea Ulrich			×
billingsi Foord			×
? cannonensis Ulrich		×	×
incompta Ulrich		×	
westoni Foord			×
wetherbyi Ulrich	×		
Nematopora alternata Ulrich			×
conferta Ulrich			×
delicatula Ulrich			×
fragilis Ulrich			×
granosa Ulrich			×
ovalis Ulrich			×
retrorsa Ulrich			×
Nicholsonella laminata Ulrich		×	
ponderosa Ulrich	×		
pulchra Ulrich	×		
Pachydictya acuta (Hall)			×
elegans Ulrich			×
everetti Ulrich	×		
fimbriata Ulrich		×	

Lists of species—Continued.

TRENTON—Continued.

	Stones River.	Black River.	Trenton.
Pachydictya foliata Ulrich	×		
magnipora Ulrich			×
occidentalis Ulrich		×	
pumila Ulrich			×
pumila-sublata Ulrich			×
robusta Ulrich	×		
triserialis Ulrich			×
Phacelopora pertenuis Ulrich			×
Phænopora incipiens Ulrich			×
Phyllodictya frondosa Ulrich	×		
varia Ulrich		×	
Phylloporina corticosa (Ulrich)			×
dawsoni Ulrich			×
fenestrata (Hall)			×
granistriata Ulrich			×
halli Ulrich		×	
reticulata (Hall)		×	×
sublaxa Ulrich	×		
trentonensis (Nicholson)			×
Prasopora affinis Foord			×
conoidea Ulrich		×	
contigua Ulrich		×	
grandis (Ulrich)	×		×
insularis Ulrich			×
insularis-filmorensis Ulrich			×
lenticularis Ulrich		×	
nodosa Ulrich			×
oculata Foord			×
selwyni (Nicholson)			×
simulatrix Ulrich		×	×
simulatrix-orientalis Ulrich			×
Proboscina tumulosa Ulrich		×	
Protocrisina exigua Ulrich			×
Rhinidictya basalis (Ulrich)	×		
exigua Ulrich	×	×	
fidelis Ulrich	×		
grandis Ulrich	×		
minima Ulrich			×
minima-modesta Ulrich			×

Lists of species—Continued.

TRENTON—Continued.

	Stones River.	Black River.	Trenton.
Rhinidictya mutabilis (Ulrich)	×	×	×
mutabilis-major (Ulrich)	....	×	....
mutabilis-senilis Ulrich	....	×	....
nashvillensis (Miller)	×	....	....
neglecta Ulrich	....	....	×
neglecta-canadensis Ulrich	....	....	×
nicholsoni Ulrich	×	....	....
paupera Ulrich	....	×	....
pediculata Ulrich	×	....	....
trentonensis (Ulrich)	×	....	....
Scenellopora radiata Ulrich	×	....	....
Spatiopora ? areolata Foord	....	....	×
labeculosa Ulrich	....	×	....
lineata-incepta Ulrich	....	×	....
Stellipora antheloidea Hall	....	....	×
Stictopora elegantula Hall	....	....	×
? labyrinthica Hall	×	....	....
? ramosa Hall	×	....	....
Stictoporella angularis Ulrich	×	....	....
angularis-intermedia Ulrich	×	....	....
cribrosa Ulrich	×	×	....
dumosa Ulrich	....	×	....
exigua Ulrich	....	....	×
flabellata (Hall)	....	....	×
frondifera Ulrich	×	....	....
rigida Ulrich	....	×	....
Stomatopora arachnoidea (Hall)	....	....	×
canadensis Whiteaves	....	....	×
delicatula (James)	×	×	×
inflata (Hall)	....	×	×
Stromatotrypa ovata Ulrich	×	×	....
Trematopora calloporoides Ulrich	....	....	×
debilis Ulrich	....	....	×
? primigenia Ulrich	....	×	....
? primigenia-ornata Ulrich	....	×	....
? primigenia-spinosa Ulrich	....	×	....
Trigonodictya conciliatrix Ulrich	....	×	....
Vinella repens Ulrich	....	×	....

Lists of species—Continued.

CINCINNATI.

	Utica.	Lorraine.	Richmond
Amplexopora cingulata Ulrich		×	
? discoidea (Nicholson)		×	
filiosa (D'Orbigny)		×	
petasiformis (Nicholson)	×		
petasiformis-welchi (James)	×		
pustulosa Ulrich			×
robusta Ulrich		×	
septosa (Ulrich)	×	×	
Anolotichia ponderosa Ulrich			×
Arthroclema angulare Ulrich			×
Arthropora shafferi (Meek)		×	
shafferi-cleavelandi (James)	×		
Arthrostylus curtus Ulrich	×		
tenuis (James)	×		
Aspidopora areolata Ulrich	×		
eccentrica (James)	×		
newberryi (Nicholson)	×		
Atactopora hirsuta Ulrich	×	×	
maculata Ulrich		×	
Atactoporella multigranosa (Ulrich)		×	
mundula (Ulrich)		×	
newportensis Ulrich	×		
ortoni (Nicholson)		×	
schucherti Ulrich			×
tenella (Ulrich)		×	
typicalis Ulrich	×		
Batostoma implicatum (Nicholson)	×		
jamesi (Nicholson)	×		
manitobense Ulrich			×
? rugosum (Whitfield)			×
varians (James)			×
Berenicea primitiva Ulrich		×	×
vesiculosa Ulrich	×		
Bythopora arctipora (Nicholson)	×		
delicatula (Nicholson)			×
dendrina (James)		×	
gracilis (Nicholson)		×	
meeki (James)			×
parvula (James)	×		
striata Ulrich			×

Lists of species—Continued.

CINCINNATI—Continued.

	Utica.	Lorraine.	Richmond.
Bythotrypa epidermata (Ulrich)			×
Callopora andrewsi (Nicholson)		×	
dalei (Edwards and Haime)		×	
nodulosa (Nicholson)	×		
onealli (James)	×		
onealli-communis (James)	×		
onealli-sigillarioides (Nicholson)	×		
ramosa (D'Orbigny)		×	
rugosa (Edwards and Haime)		×	
subnodosa Ulrich			×
subplana Ulrich		×	
Calloporella circularis (James)			×
? lens (Whitfield)			×
? nodulosa Ulrich			×
Ceramoporella distincta Ulrich	×	×	
granulosa Ulrich			×
granulosa-milfordensis (James)	×		
irregularis (Whitfield)			×
ohioensis (Nicholson)	×	×	×
stellata Ulrich			×
whitei (James)		×	×
Chiloporella nicholsoni (James)		×	
Cœloclema alternatum (James)	×		
concentricum (James)	×		
oweni (James)		×	
Constellaria constellata (Van Cleve) Dana		×	
constellata-plana Ulrich		×	
constellata-prominens Ulrich	×	×	
limitaris (Ulrich)			×
parva Ulrich			×
polystomella Nicholson			×
punctata (Whitfield)			×
Crepipora hemispherica Ulrich			×
impressa Ulrich		×	
simulans Ulrich		×	×
solida Ulrich	×		
venusta (Ulrich)	×		
Dekayella obscura Ulrich	×		
ulrichi (Nicholson)	×		
ulrichi-robusta Foord	×		

Lists of species—Continued.

CINCINNATI—Continued.

	Utica.	Lorraine.	Richmond.
Dekayia appressa Ulrich		×	
aspera Edwards and Haime		×	
maculata James	×		
multispinosa Ulrich		×	
pelliculata Ulrich		×	
Dicranopora emacerata (Nicholson)		×	×
fragilis (Billings)			×
internodia (Miller and Dyer)		×	
nitidula (Billings)			×
Diplotrypa ? dubia Ulrich			×
Discotrypa elegans (Ulrich)		×	
Eridotrypa simulatrix (Ulrich)			×
Escharopora acuminata (James)	×		
falciformis (Nicholson)		×	
hilli (James)		×	
maculata (Ulrich)		×	
pavonia (D'Orbigny)		×	
Eurydictya montifera Ulrich			×
sterlingensis Ulrich			×
Fenestella granulosa Whitfield			×
Goniotrypa bilateralis Ulrich			×
Graptodictya perelegans (Ulrich)			×
Helopora elegans Ulrich			×
harrisi James			×
imbricata Ulrich			×
Hemiphragma imperfectum (Ulrich)			×
whitfieldi (James)	×		
Heterotrypa affinis (Ulrich)			×
frondosa (D'Orbigny)		×	
inflecta Ulrich		×	
paupera (Ulrich)		×	
singularis Ulrich			×
solitaria Ulrich		×	
subpulchella (Nicholson)		×	
subramosa (Ulrich)			×
subramosa-prolifica Ulrich			×
Homotrypa curvata Ulrich		×	
dawsoni (Nicholson)		×	×
flabellaris Ulrich		×	×
gelasinosa Ulrich			×
obliqua Ulrich		×	

Lists of species—Continued.

CINCINNATI—Continued.

	Utica.	Lorraine.	Richmond.
Homotrypella contexta Ulrich			×
rustica Ulrich			×
Leptotrypa calceola (Miller and Dyer)		×	
clavacoidea (James)		×	
? clavis Ulrich	×		
? cortex Ulrich	×		
? dychei (James)		×	
? irregularis (Ulrich)		×	
minima Ulrich		×	
ornata Ulrich		×	
? semipilaris Ulrich		×	
stidhami Ulrich			×
Lioclema ? wilmingtonense Ulrich			×
Lioclemella annulifera (Whitfield)			×
fusiformis (Whitfield)			×
nitida (Ulrich)			×
solidissima (Whitfield)			×
subfusiformis (James)			×
Mesotrypa patella (Ulrich)			×
Monotrypa nodosa Ulrich			×
turbinata (James)	×		
undulata-hemispherica (J. F. James)			×
Monotrypella æqualis Ulrich	×		
crassimuralis Ulrich			×
quadrata (Rominger)			×
subquadrata Ulrich			×
Monticulipora cincinnatiensis (James)		×	
?? cleavelandi James			×
lævis Ulrich			×
lævis-consimilis Ulrich			×
lamellosa Ulrich			×
mammulata D'Orbigny		×	
molesta Nicholson		×	
parasitica Ulrich			×
parasitica-plana Ulrich			×
?? winchelli James			×
?? wortheni James			×
Nicholsonella cumulata Ulrich			×
vaupeli (Ulrich)		×	

Lists of species—Continued.

CINCINNATI—Continued.

	Utica.	Lorraine.	Richmond.
Pachydictya fenestelliformis (Nicholson)			×
fenestelliformis-corticula Ulrich			×
? firma Ulrich			×
gigantea Ulrich			×
hexagonalis Ulrich			×
? splendens Ulrich			×
Paleschara beani (James)	×		×
Peronopora compressa (Ulrich)		×	
decipiens (Rominger)		×	×
Petigopora asperula Ulrich		×	
gregaria Ulrich		×	
petechialis (Nicholson)		×	
scabiosa Ulrich		×	
Phænopora wilmingtonensis Ulrich			×
Phylloporina clathrata (Miller and Dyer)		×	
variolata (Ulrich)	×		
Prasopora ? hospitalis (Nicholson)			×
Proboscina auloporoides (Nicholson)		×	×
confusa (Nicholson)	×		
frondosa (Nicholson)		×	×
Protocrisina exigua Ulrich			×
Ptilodictya canadensis Billings			×
flagellum Nicholson			×
magnifica Miller			×
nodosa James			×
plumaria James			×
whiteavesi Ulrich			×
Ptilotrypa obliquata Ulrich			×
Rhinidictya lata (Ulrich)			×
parallela James	×		
Rhopalonaria venosa Ulrich		×	×
Sceptropora facula Ulrich			×
Spatiopora aspera Ulrich		×	
corticans (Nicholson)		×	×
iowensis Ulrich	×		
lineata Ulrich		×	
maculosa Ulrich		×	
montifera Ulrich			×
tuberculata (Edwards and Haime)		×	×

Lists of species—Continued.

CINCINNATI—Continued.

	Utica.	Lorraine.	Richmond.
Stictoporella flexuosa (James)	×		
Stomatopora arachnoidea (Hall)	×	×	×
delicatula (James)	×	×	×
delicatula-tenuissima Ulrich	×		
inflata (Hall)		×	×
turgida Ulrich			×
Trematopora ?? granulata Whitfield			×
Vinella radialis Ulrich		×	

SILURIAN.

	Anticosti.	Clinton.	Niagara.	Lower Held.
Aspidopora parmula (Foerste)		×		
parmula-fenestelliformis Foerste		×		
Batostomella ? aspera (Hall)			×	
granulifera (Hall)			×	
Berenicea elegans (Hall)			×	
membranacea (Hall)			×	
Bythopora spinulosa (Hall)			×	
Callopora ?? cervicornis Hall			×	
?? diversa Hall			×	
elegantula Hall			×	
magnopora Foerste		×		
?? nummiformis Hall			×	
?? oppleta Hall and Simpson				×
perelegans Hall				×
Callotrypa heteropora (Hall)				×
macropora (Hall)				×
macropora-signata (Hall)				×
oculifera (Hall)				×
paucipora Hall and Simpson				×
striata (Hall and Simpson)				×
unispina (Hall)				×
Ceramopora ? confluens Hall			×	
? expansa James		×		
? explanata Hall			×	
imbricata Hall			×	
? labeculoidea Hall				×

Lists of species—Continued.

SILURIAN—Continued.

	Anticosti.	Clinton.	Niagara.	Lower Held.
Ceramopora ? maculata Hall				×
? notha Hall			×	
orbiculata Ringueberg			×	
? parvicella Hall				×
? raripora Hall			×	
Chætetes ?? expansus Ringueberg			×	
Chilotrypa ? coalescens (Hall)			×	
dispersa (Hall)				×
ostiolata (Hall)			×	
varia (Hall)			×	
variolata (Hall)			×	
Clathropora ? alcicornis Hall			×	
frondosa Hall		×	×	
frondosa-clintonensis Hall and Whitfield		×		
intermedia Nicholson and Hinde			×	
Cœlocaulis ? mediopora (Hall)				×
venusta (Hall)				×
Diamesopora dichotoma Hall			×	
infrequens (Hall)			×	
osculum (Hall)			×	
subimbricata (Hall)			×	
? tubulosa (Hall)		×		
Dicranopora fragilis (Billings)	×			
granulosa (Hall and Simpson)				×
Diploclema sparsum (Hall)			×	
Drymotrypa cisseis (Hall)				×
diffusa (Hall)			×	
niagarensis (Hall)			×	
Eridotrypa corticosa (Hall)				×
echinata (Hall)			×	
Fenestella acuticosta Roemer			×	
adornata Hall and Simpson				×
adraste Hall				×
æsyle Hall				×
althæa Hall				×
bellistriata Hall			×	
cleia Hall				×
crebripora Hall				×
? cribrosa Hall			×	

Lists of species—Continued.

SILURIAN—Continued.

	Anticosti.	Clinton.	Niagara.	Lower Held.
Fenestella elegans Hall			×	
? frequens Hall				×
hestia Hall				×
? idalia Hall				×
juncea Hall				×
noe Hall and Simpson				×
parvulipora Hall			×	
pertenuis Hall			×	
philia Hall				×
prolixa Hall			×	
spio Hall and Simpson				×
sylvia Hall				×
tenuis Hall		×		
Fistulipora ? crassa (Hall)				×
distans (Hall)				×
halli Rominger			×	
hemispherica (Roemer)			×	
maculosa (Hall)				×
neglecta Rominger			×	
neglecta-maculata Hall			×	
serialis (Hall and Simpson)				×
torta (Hall)				×
? triloba Hall and Simpson				×
Helicopora latispiralis Claypole			×	
Helopora armata Billings	×			
bellula Billings	×			
? ? circe Billings	×			
? ? concava Billings	×			
fragilis Hall		×	×	
? ? irregularis Billings	×			
nodosa Billings	×			
? ? varipora Billings	×			
Hemitrypa biserialis (Hall)				×
biserialis-exilis (Hall and Simpson)				×
ulrichi Foerste		×		
Homotrypa ? confluens Foerste		×		
? solida (Hall)			×	
Ichthyorachis nereis Hall				×
Idiotrypa parasitica Ulrich			×	
Leptotrypa ? sphærion (Hall)			×	

Lists of species—Continued.

SILURIAN—Continued.

	Anticosti.	Clinton.	Niagara.	Lower Held.
Lichenalia concentrica Hall	-------	-------	×	------
Lioclema asperum (Hall)	-------	-------	×	------
cellulosum (Hall)	-------	-------	-------	×
? exsul (Hall)	-------	-------	×	------
(? Nicholsonella) floridum (Hall)	-------	-------	×	------
(? Nicholsonella) laminatum (Hall)	-------	-------	×	------
parasiticum (Hall)	-------	-------	-------	×
ponderosum (Hall)	-------	-------	-------	×
Lioclemella ohioensis (Foerste)	-------	×	-------	------
Loculipora ambigua (Hall)	-------	-------	×	------
loculata (Hall)	-------	-------	-------	×
Meekopora foliacea (Hall)	-------	-------	×	------
Mesotrypa milleri (Ulrich)	-------	-------	×	------
Monotrypa colliculata (Hall)	-------	-------	-------	×
? helderbergiæ (Hall)	-------	-------	-------	×
monticulata (Hall)	-------	-------	-------	×
? proxima (Hall)	-------	-------	-------	×
sphærica (Hall)	-------	-------	-------	×
?? spinulosa (Hall and Simpson)	-------	-------	-------	×
tabulata (Hall)	-------	-------	-------	×
Monotrypella ? abrupta (Hall)	-------	-------	-------	×
? arbuscula (Hall)	-------	-------	-------	×
? consimilis (Hall)	-------	-------	×	------
? densa (Hall)	-------	-------	-------	×
Nematopora formosa (Billings)	×	-------	-------	------
lineata (Billings)	×	-------	-------	------
? lineopora (Billings)	×	-------	-------	------
macropora (Hall)	-------	-------	×	------
minuta (Hall)	-------	-------	×	------
raripora (Hall)	-------	×	×	------
striatopora (Billings)	×	-------	-------	------
strigosa (Billings)	×	-------	-------	------
Orthopora canaliculata (Hall)	-------	-------	-------	×
granilinea (Hall and Simpson)	-------	-------	-------	×
nodosa (Hall and Simpson)	-------	-------	-------	×
ovatipora (Hall)	-------	-------	-------	×
parallela (Hall)	-------	-------	-------	×
regularis (Hall)	-------	-------	-------	×
rhombifera (Hall)	-------	-------	-------	×

Lists of species—Continued.

SILURIAN—Continued.

	Anticosti.	Clinton.	Niagara.	Lower Held.
Pachydictya alcyone (Billings)	×			
bifurcata (Hall)		×		
bifurcata-instabilis Foerste		×		
crassa (Hall)	×	×	×	
emaciata Foerste		×		
? famelica Foerste		×		
obesa Foerste		×		
turgida Foerste		×		
Paleschara ?? bilateralis Hall				×
concentrica Hall and Simpson				×
? dissimilis (Hall)				×
? incrassata Hall			×	
incrustans Hall				×
? maculata Hall			×	
? offula Hall			×	
radiata Hall				×
? tenuis Hall and Simpson				×
Phænopora constellata Hall		×		
ensiformis Hall		×		
excellens (Billings)	×			
expansa Hall and Whitfield		×		
explanata Hall		×		
fimbriata (James)		×		
lirata (Hall)				×
magna (Hall and Whitfield)		×		
multifida (Hall)		×		
punctata (Nicholson and Hinde)		×		
superba (Billings)	×			
tenuis (Hall)				×
Phylloporina angulata (Hall)		×		
asperato-striata (Hall)			×	
Polypora albionensis Spencer			×	
arta (Hall)				×
compacta (Hall)				×
compressa (Hall)				×
conferta Hall			×	
eudora (Hall)				×
idothea (Hall)				×
incepta Hall			×	

Lists of species—Continued.

SILURIAN—Continued.

	Anticosti.	Clinton.	Niagara.	Lower Held.
Polypora lilæa Hall				×
obliqua (Hall)				×
paxillata (Hall)				×
punctostriata (Hall)			×	
? stricta (Hall and Simpson)				×
tantula (Hall)			×	
varia (Hall)				×
Ptilodictya angusta (Hall)			×	
expansa Hall		×		
expansa-emarcescens Foerste		×		
gladiola Billings	×			
nebulosa (Hall)				×
obliqua Ringueberg		×		
sulcata Billings	×			
? tenera (Billings)	×			
whitfieldi Foerste		×		
Ptiloporella nervata (Nicholson)			×	
Rhinopora ? tuberculosa Hall			×	
? tubulosa Hall		×		
verrucosa Hall		×		
Sceptropora fustiformis Ulrich		×		
Semicoscinium acmeum (Hall)			×	
? cleis (Hall)				×
coronis (Hall)				×
tenuiceps (Hall)			×	
thyene (Hall)				×
Stictopora ?? granatula Hall				×
?? obsoleta Hall and Simpson				×
?? papillosa Hall				×
Stictotrypa orbipora (Hall)			×	
punctipora (Hall)			×	
similis (Hall)			×	
Stomatopora parva Ringueberg			×	
recta Ringueberg			×	
Thamniscus dichotomus (Hall)			×	
fruticellus Hall				×
nysa Hall				×
variolatus Hall				×
Trematopora halli Ulrich			×	
?? punctata Hall			×	

Lists of species—Continued.

SILURIAN—Continued.

	Anticosti.	Clinton.	Niagara.	Lower Held.
Trematopora ? singularis Hall			×	
? spiculata Miller			×	
?? superba Billings		×	×	
tuberculosa Hall			×	
whitfieldi Ulrich			×	
Trigonodictya eatonensis Ulrich		×		
Unitrypa nervia (Hall)				×
nervia-constricta (Hall)				×
præcursor (Hall)				×
quadrula (Hall)				×
Vinella radiciformis-conferta Ulrich			×	

DEVONIAN.

	Oriskany.	Upper Held.	Hamilton.
Acanthoclema alternatum (Hall)		×	
divergens Hall and Simpson		×	
ovatum Hall and Simpson		×	
sulcatum Hall and Simpson			×
triseriale (Hall)		×	
Acrogenia prolifera Hall			×
Ascodictyon fusiforme Nicholson and Etheridge, Jun			×
stellatum Nicholson and Etheridge, Jun			×
Bactropora curvata Hall and Simpson			×
granistriata (Hall)			×
Botryllopora socialis Nicholson			×
Buskopora bistriata (Hall)			×
dentata Ulrich			×
lunata (Rominger)		×	
pyriformis (Hall)			×
Callotrypa ? geniculata (Hall)		×	
internodata (Hall)			×
multiseriata (Hall)		×	
Ceramella scidacea Hall and Simpson			×
Ceramopora ?? imbricella Hall			×
Chætetes ?? hamiltonensis Winchell			×
?? microscopicus Winchell			×

Lists of species—Continued.

DEVONIAN—Continued.

	Oriskany.	Upper Held.	Hamilton.
Chætetes ?? ponderosus Rominger			×
?? tenuis Hall		×	×
Chilotrypa camerata (Hall)		×	
Clathropora intertexta Nicholson		×	
Clonopora incurva Hall		×	
fasciculata Hall and Simpson		×	
semireducta Hall			×
Cœlocaulis ?? aculeolata Hall		×	
?? hyale Hall		×	
? irregularis (Hall)		×	
Coscinella cosciniformis (Nicholson)			×
elegantula Hall and Simpson			×
Coscinium cribriforme Prout			×
striatum Hall and Simpson			×
striaturum (Hall)		×	
Crisinella scrobiculata (Hall)		×	
Cyclotrypa collina (Ulrich)			×
communis (Ulrich)			×
Cystodictya angularis (Hall and Simpson)			×
bifurcata (Hall and Simpson)			×
crescens (Hall)		×	
gilberti (Meek)		×	×
hamiltonensis Ulrich			×
incisurata (Hall)			×
? invertis (Hall)		×	
limata (Hall and Simpson)			×
linearis (Hall)		×	
meeki (Nicholson)		×	×
ovata (Hall and Simpson)			×
ovatipora (Hall)			×
perarcta (Hall)		×	
recta (Hall and Simpson)			×
rectilinea (Hall and Simpson)			×
rigida (Hall)		×	
semistriata (Hall)		×	
sinuosa (Hall)			×
subrigida (Hall)			×
sulcata (Winchell)			×
trilineata (Hall and Simpson)			×

Liste of species—Continued.

DEVONIAN—Continued.

	Oriskany.	Upper Held.	Hamilton.
Cystodictya tumulosa (Hall)			×
vermicula (Hall)			×
Cystopora geniculata Hall			×
Dekayia ? devonica Ulrich			×
Dichotrypa foliata Ulrich			×
Discotrypa ? devonica Ulrich			×
Eridopora ? clivulata (Hall)			×
denticulata (Hall)			×
Eridotrypa appressa (Ulrich)			×
? obliqua (Ulrich)			×
Euspilopora ? barrisi Ulrich			×
lobata (Hall and Simpson)			×
palmipes (Hall)			×
serrata Ulrich			×
Favicella inclusa (Hall)			×
tessellata (Hall and Simpson)			×
Fenestella æqualis Hall			×
angustata Hall			×
arkonensis Whiteaves			×
assita Hall			×
biseriata Hall		×	
clathrata Hall and Simpson		×	
cultrata Hall			×
curvata Hall			×
curvijunctura Hall			×
depressa Hall			×
dilata Prout			×
dispanda Hall		×	
emaciata Hall			×
? erectipora Hall		×	
eximia Winchell			×
filitexta Winchell			×
magnifica Nicholson		×	
marcida Hall			×
marginalis Nicholson		×	
? nexilis Hall		×	
nicholsoni Whiteaves			×
nodosa Prout			×
parallela Hall		×	

Lists of species—Continued.

DEVONIAN—Continued.

	Oriskany.	Upper Held.	Hamilton.
Fenestella peculiaris Hall		×	
perplexa Hall			×
planiramosa Hall			×
proceritas Hall and Simpson		×	
proutana Miller			×
pulchella Ulrich			×
quadrangula Hall			×
serrata Hall			×
singularitas Hall			×
sinuosa Hall		×	
spissa Hall			×
stellata Hall			×
tenella Hall			×
tuberculata Hall and Simpson		×	
variapora Hall			×
vera Ulrich			×
verrucosa Hall			×
Fenestrapora biperforata Hall			×
infraporosa (Ulrich)			×
occidentalis Ulrich			×
Fistulipora acervulosa Rominger			×
alternata (Hall)			×
astrica Ulrich			×
? bullata (Hall and Simpson)			×
colliculata (Hall)			×
? confusa (Hall and Simpson)			×
? constricta (Hall)			×
conulata (Hall)			×
cornuta (Hall and Simpson)			×
(?Dichotrypa) corrugata Ulrich			×
cultellata (Hall)			×
distensa (Hall)			×
eriensis Rominger			×
foliacea (Hall)			×
foordi Ulrich			×
geometrica (Hall)			×
granifera (Hall)			×
?? helios Rominger		×	
? hemispherica (Hall)			×

Lists of species—Continued.

DEVONIAN—Continued.

	Oriskany.	Upper Held.	Hamilton.
Fistulipora huronensis (Nicholson)			×
incrassata (Nicholson)			×
interaspera Hall and Simpson			×
labiosa Winchell			×
? lamellata (Hall)		×	
longimacula (Hall)			×
monticulata Ulrich			×
normalis Ulrich			×
ovata (Hall)			×
? permarginata (Hall)		×	
? pustulosa (Hall and Simpson)			×
ramosa (Hall and Simpson)			×
romingeri Nicholson and Foord			×
saffordi Winchell			×
? scrobiculata (Hall)			×
spinulifera Rominger			×
subcava (Hall)			×
substellata (Hall)			×
subtrigona (Hall and Simpson)			×
sulcata Rominger			×
? triangularis (Hall)			×
? trifaria Hall and Simpson			×
? umbilicata (Hall)			×
? unilinea Hall and Simpson			×
utriculus Rominger			×
vesiculata Hall and Simpson			×
Glossotrypa paliformis (Hall)			×
Hederella alternata (Hall and Whitfield)			×
canadensis (Nicholson)		×	×
cirrhosa Hall			×
conferta (Hall)			×
filiformis (Billings)			×
magna Hall			×
Helicopora ulrichi Claypole			×
Hemitrypa biordo Hall		×	
columellata (Hall and Simpson)		×	
cribrosa (Hall)			×
favosa (Hall)		×	
tenera Ulrich			×

Lists of species—Continued.

DEVONIAN—Continued.

	Oriskany.	Upper Held.	Hamilton.
Hernodia humifusa Hall			×
Heterotrypa ? barrandei (Nicholson)			×
? moniliformis (Nicholson)			×
Intrapora puteolata Hall			×
Isotrypa conjunctiva (Hall)		×	
consimilis Hall		×	
Leptotrypa ? quadrangularis (Nicholson)			×
Lichenotrypa longispina (Hall)			×
Lioclema confertiporum (Hall)			×
decipiens (Hall)			×
densum (Hall)			×
digitatum (Hall)			×
intercellatum (Hall)			×
involvens (Hall and Simpson)			×
microporum (Hall)			×
minutissimum (Nicholson)			×
minutum (Rominger)			×
multaculeatum (Hall)			×
occidens (Hall and Whitfield)			×
punctillatum (Winchell)			×
segregatum (Hall)			×
spheroideum (Hall)			×
subtile (Hall)			×
Loculipora circumstata (Hall and Simpson)		×	
perforata (Hall)			×
Meekopora stellifera (Rominger)			×
Monotrypa ? amplectens Grabau			×
Monotrypella ? unjiga Whiteaves			×
Monticulipora ? monticula (White)			×
? winchelli Ulrich			×
Nemataxis fibrosus Hall		×	
? simplex Hall and Simpson			×
Orthopora bispinulata (Hall)			×
carinata Hall and Simpson			×
elongata (Hall and Simpson)			×
granifera (Hall and Simpson)			×
hexagona (Hall and Simpson)			×
immersa (Hall and Simpson)			×
interplana (Hall and Simpson)			×

Lists of species—Continued.

DEVONIAN—Continued.

	Oriskany.	Upper Held.	Hamilton.
Orthopora lineata (Hall and Simpson)			×
orbipora (Hall)			×
ornata (Hall and Simpson)			×
polygona (Hall)			×
regularis (Hall)			×
reticulata (Hall and Simpson)			×
rhombifera (Hall)			×
scutulata (Hall)		×	
subquadrata (Hall)			×
tortalinea (Hall)			×
transversa (Hall)			×
Paleschara ? intercella Hall			×
? pertenuis Hall			×
? reticulata Hall			×
? variacella Hall			×
Petalotrypa compressa Ulrich			×
delicata Ulrich			×
Phractopora cristata (Hall)			×
Phyllopora aspera Ulrich			×
Pinacotrypa elegans (Rominger)			×
marginata Whiteaves			×
operculata (Hall and Simpson)			×
plana (Hall)			×
serrulata (Hall)			×
stellata (Hall)			×
variapora (Hall)			×
Pinnatopora carinata (Hall)			×
nodata (Hall)		×	
sinuosa (Hall)		×	
tenuistriata (Hall)		×	
Polypora aculeata (Hall)			×
arkonensis Miller			×
aspectans (Hall)			×
blandida Ulrich			×
brevisulcata (Hall)		×	
carinella (Hall and Simpson)		×	
celsipora (Hall)		×	
celsipora-minima Hall			×
celsipora-minor Hall		×	

Lists of species—Continued.

DEVONIAN—Continued.

	Oriskany.	Upper Held.	Hamilton.
Polypora crebrescens (Hall)		×	
cylindracea (Hall)		×	
distans (Hall)		×	
elongata (Hall)		×	
fistulata (Hall)			×
flabelliformis (Hall)		×	
granilinea (Hall)		×	
hexagonalis (Hall)		×	
hexagonalis-foraminulosa (Hall)		×	
intermedia Prout			×
lævistriata (Hall)			×
largissima (Hall)		×	
latitruncata (Hall)			×
levinodata (Hall)			×
manitobensis Whiteaves			×
multiplex (Hall)			×
mutabilis (Hall)		×	
nexa (Hall)		×	
perangulata (Hall)		×	
porosa (Hall)		×	
propria (Hall)		×	
? psyche Billings	×		
pulchella Nicholson		×	
quadrangularis (Hall)			×
rigida (Hall)		×	
robusta (Hall)		×	
rustica (Hall and Simpson)		×	
separata (Hall and Simpson)		×	
shumardi Prout			×
striatopora (Hall)			×
submutans (Hall)			×
tenella Nicholson		×	
transversa Ulrich			×
Prismopora dilatata Hall			×
lata Hall and Simpson			×
paucirama Hall		×	
sparsipora (Hall)			×
triquetra Hall			×
Proboscina ? laxa Whiteaves			×

Lists of species—Continued.

DEVONIAN—Continued.

	Oriskany.	Upper Held.	Hamilton.
Ptilocella parallela (Hall and Simpson)			×
Ptilodictya gigantea (Nicholson)		×	
?? tarda Billings	×		
Ptilopora infrequens (Hall and Simpson)			×
nodosa (Hall)			×
striata Hall			×
Ptiloporella bifurca (Ulrich)			×
inæqualis (Hall and Simpson)		×	
laticrescens (Hall and Simpson)		×	
Ptiloporina conica (Hall and Simpson)		×	
disparilis (Hall and Simpson)		×	
pinnata (Hall and Simpson)		×	
sinistralis (Hall and Simpson)		×	
Reptaria nodata (Hall)			×
stolonifera Rolle			×
Reteporidra adnata (Hall)			×
cinctuta (Hall)			×
perundata (Hall)			×
Reteporina coalescens (Hall and Simpson)		×	
hamiltonensis (Prout)			×
perundulata (Hall)			×
phillipsi (Nicholson)		×	
prisca (Goldfuss?) (Nicholson)		×	×
rhombifera (Hall)		×	
striata (Hall)			×
Rhombopora lineinodis Ulrich			×
lineinodis-humilis Ulrich			×
subannulata Ulrich			×
sulcifera Ulrich			×
Scalaripora approximata Ulrich			×
canadensis Whiteaves			×
scalariformis Hall			×
separata Ulrich			×
subconcava Hall			×
Selenopora circincta (Hall)			×
complexa (Hall)			×
Semicoscinium biimbricatum (Hall)			×
biserrulatum Hall			×
davidsoni (Nicholson)			×

Lists of species—Continued.

DEVONIAN—Continued.

	Oriskany.	Upper Held.	Hamilton
Semicoscinium eriense Prout			
exornatum (Hall)			×
graniferum (Hall)		×	
hindei (Nicholson)		×	
inflexum (Hall)			×
interruptum (Hall)			×
labiatum (Hall)			×
latijuncturum (Hall)			×
lunulatum (Hall)			×
mirabile (Nicholson)		×	
permarginatum (Hall)			×
planidorsatum Ulrich			×
rhombicum Ulrich			×
rhomboideum Prout			×
semirotundum (Hall)			×
subtortile (Hall)			×
tortum (Hall)			×
tuberculatum (Prout)			×
Semiopora bistigmata Hall			×
Stictopora ?? divergens Hall and Simpson			×
?? fruticosa Hall		×	
?? granifera Hall			×
?? incrassata Hall			×
?? interstriata Hall			×
?? permarginata Hall			×
?? striata Hall and Simpson			×
Stictoporina claviformis (Hall)			×
plumea (Hall and Simpson)			×
scutulata (Hall)			×
Stomatopora ?? moniliformis Whiteaves			×
Streblotrypa hamiltonensis (Nicholson)			×
scutulata (Hall)			×
Strotopora perminuta Ulrich			×
Tæniodictya ? rhomboidea (Hall)		×	
Tæniopora exigua Nicholson			×
occidentalis Ulrich			×
penniformis Nicholson			×
recubans (Hall and Simpson)			×
subcarinata (Hall)			×

Lists of species—Continued.

DEVONIAN—Continued.

	Oriskany.	Upper Held.	Hamilton.
Thamniscus multiramus Hall		×	
nanus Hall			×
pauciramus Hall			×
Thamnotrypa divaricata (Hall)		×	
Trematella annulata (Hall)			×
arborea (Hall)			×
glomerata (Hall)		×	
nodosa (Hall and Simpson)			×
perspinulata (Hall)			×
Tropidopora nana Hall		×	
Unitrypa acaulis (Hall)			×
acclivis (Hall and Simpson)		×	
anonyma (Hall)			×
? elegantissima (Hall)		×	
fastigata (Hall)			×
ficticia (Hall and Simpson)		×	
lata (Hall)		×	
nana (Hall and Simpson)		×	
pernodosa (Hall)		×	
scalaris (Hall)			×
substriata (Hall)		×	
tegulata (Hall)			×

MISSISSIPPIAN.

	Ki.	Osage.			St. Louis.			Ch.
		Wav.	Bur.	Keo.	War.	St. L.	Ste. G.	
Acanthoclema confluens (Ulrich)		×		×				
Actinotrypa peculiaris (Rominger)				×				
Anisotrypa fistulosa Ulrich							×	
ramulosa Ulrich							×	
solida Ulrich								×
symmetrica Ulrich								×
Archimedes communis Ulrich								×
compactus Ulrich								×
distans Ulrich								×
grandis Ulrich				×				
intermedius Ulrich								×

Lists of species—Continued.

MISSISSIPPIAN—Continued.

	Ki.	Osage.			St. Louis.			Ch.
		Wav.	Bur.	Keo.	War.	St. L.	Ste. G.	
Archimedes invaginatus Ulrich								×
laxus (Hall)								×
meekanus (Hall)								×
negligens Ulrich				×				
owenanus (Hall)				×				
perminimus Ulrich								×
proutanus Ulrich								×
sublaxus Ulrich								×
swallovanus (Hall)								×
terebriformis Ulrich								×
wortheni (Hall)					×			
Bactropora simplex Ulrich				×				
Batostomella abrupta Ulrich								×
interstincta Ulrich							×	
nitidula Ulrich								×
spinulosa Ulrich								×
Berenicea ? insueta Dawson								
Chilotrypa hispida Ulrich								×
Cœloconus granosus Ulrich								×
rhombicus Ulrich					×			
Coscinium latum Ulrich			×					
Cyclopora expatiata Ulrich				×				
fungia Prout		×		×				
Cycloporella ? perversa Ulrich				×				
spinifera Ulrich				×				
Cystodictya americana Ulrich				×				
angusta Ulrich		×						
lineata Ulrich				×				
lineata-major Ulrich						×		
lineata-sancti-ludovici Ulrich						×		
nitida Ulrich				×				
ocellata Ulrich				×				
pustulosa Ulrich				×				
simulans Ulrich		×		×				
zigzag Ulrich		×		×				
Dichotrypa elegans Ulrich						×		
expatiata Ulrich						×		
flabellum (Rominger)						×		

Lists of species—Continued.

MISSISSIPPIAN—Continued.

	Ki.	Osage.			St. Louis.			Ch.
		Wav.	Bur.	Keo.	War.	St. L.	Ste. G.	
Dichotrypa intermedia Ulrich						×		
lyroides Ulrich						×		
Diploporaria bifurcata Ulrich								×
Eridopora macrostoma Ulrich								×
punctifera Ulrich								×
Evactinopora grandis Meek and Worthen			×					
quinqueradiata Ulrich			×					
radiata Meek and Worthen				×				
sexradiata Meek and Worthen			×					
Fenestella albida Hall		×						
aperta Hall		×						
banyana Prout					×			
burlingtonensis Ulrich		×	×					
cavernosa Ulrich		×						
cestriensis Ulrich								×
cingulata Ulrich				×				
compressa Ulrich				×				
delicata Meek		×						
elevatipora Ulrich								×
exigua Ulrich					×			
filistriata Ulrich			×					
foliata Ulrich		×						
funicula Ulrich				×				
herrickana Ulrich		×						
limitaris Ulrich				×				
lodiensis Meek		×						
meekana Ulrich		×						
multispinosa Ulrich				×				
nododorsalis Ulrich				×				
regalis Ulrich				×				
regalis-macra Ulrich				×				
richfieldensis Ulrich		×						
rudis Ulrich				×	×			
serratula Ulrich				×	×	×		×
subflexuosa Ulrich		×						
tenax Ulrich		×			×			×

Lists of species—Continued.

MISSISSIPPIAN—Continued.

	Ki.	Osage.			St. Louis.			Ch.
		Wav.	Bur.	Keo.	War.	St. L.	Ste. G.	
Fenestella triserialis Ulrich	----	------	------	×	------	------	------	----
Fenestralia compacta Ulrich	----	------	------	------	------	×	------	----
sancti-ludovici Prout	----	------	------	------	×	×	------	----
Fistulipora asteria (Prout)	----	------	------	×	------	------	------	----
compressa Rominger	----	------	------	×	------	------	------	----
excellens Ulrich	----	------	------	------	------	------	------	×
prolifica Ulrich	----	------	------	------	------	×	------	----
spergenensis Rominger	----	------	------	------	×	------	------	----
? tuberculata Prout	----	------	------	×	------	------	------	----
Glyptopora elegans (Prout)	----	------	------	------	×	------	------	----
keyserlingi (Prout)	----	------	------	×	------	------	------	----
michelinia (Prout)	----	------	------	------	×	------	------	----
plumosa (Prout)	----	------	------	------	×	------	------	----
punctipora Ulrich	----	------	------	------	------	------	------	×
sagenella (Prout)	----	------	------	×	×	------	------	----
sagenella-caliculosa Ulrich	----	------	------	------	×	------	------	----
sagenella-lata Ulrich	----	------	------	------	×	------	------	----
Heliotrypa bifolia Ulrich	----	------	------	------	------	------	------	×
Hemitrypa aspera Ulrich	----	------	------	×	------	------	------	----
nodosa Ulrich	----	------	------	×	------	------	------	----
pateriformis Ulrich	----	------	------	×	------	------	------	----
perstriata Ulrich	----	------	------	×	------	------	------	----
plumosa (Prout)	----	------	------	------	×	------	------	----
proutana Ulrich	----	------	------	×	×	×	------	----
proutana-nodulosa Ulrich	----	------	------	×	------	------	------	----
proutana-vermifera Ulrich	----	------	------	------	×	------	------	----
Intrapora basalis (Ulrich)	----	------	------	------	×	------	------	----
undulata (Ulrich)	----	------	------	------	------	------	------	×
Lioclema ? araneum Ulrich	----	------	------	------	------	------	------	×
foliatum Ulrich	----	------	------	------	×	------	------	----
gracillimum Ulrich	×	×	×	×	×	------	------	----
punctatum (Hall)	----	×	------	×	×	×	------	----
subglobosum Ulrich	×	------	------	------	------	------	------	----
wachsmuthi Ulrich	×	------	------	------	------	------	------	----
Lyropora divergens Ulrich	----	------	------	------	------	------	------	×
ovalis Ulrich	----	------	------	------	------	------	------	×
quincuncialis (Hall)	----	------	------	------	------	------	------	×

Lists of species—Continued.

MISSISSIPPIAN—Continued.

	Ki.	Osage.			St. Louis.			Ch.
		Wav.	Bur.	Keo.	War.	St. L.	Ste. G.	
Lyropora ranosculum Ulrich								×
retrorsa (Meek and Worthen)			×					
subquadrans (Hall)								×
subquadrans-lyra (Hall)								×
Meekopora ? aperta Ulrich				×				
approximata Ulrich								×
clausa (Ulrich)								×
eximia Ulrich						×		×
Phractopora megastoma (Ulrich)		×		×				
pinnata (Ulrich)			×					
trifolia (Rominger)				×				
Pinnatopora conferta Ulrich				×				
curvata Ulrich		×						
flexuosa Ulrich				×				
intermedia Ulrich		×						
minor Ulrich		×						
simulatrix Ulrich		×						
striata Ulrich				×				
subangulata Ulrich		×						
tenuiramosa Ulrich		×						
vinei Ulrich		×		×				
youngi Ulrich		×		×				
Polypora approximata Ulrich								×
biseriata Ulrich					×			
burlingtonensis Ulrich			×					
cestriensis Ulrich								×
complanata Ulrich								×
corticosa Ulrich								×
? gracilis Prout				×				
halliana Prout				×	×			
impressa Ulrich		×						
maccoyana Ulrich				×				
radialis Ulrich		×		×				
retrorsa Ulrich				×				
simulatrix Ulrich				×				
spininodata Ulrich					×			
spinulifera Ulrich								×

Lists of species—Continued.

MISSISSIPPIAN—Continued.

	Ki.	Osage.			St. Louis.			Ch.
		Wav.	Bur.	Keo.	War.	St. L.	Ste. G.	
Polypora tuberculata Prout								×
varsoviensis Prout					×			
Prismopora serrulata Ulrich								×
Proutella discoidea (Prout)				×				
Ptilopora acuta Ulrich			×	×				
cylindracea Ulrich				×				
paupera Ulrich		×		×				
prouti Hall					×			
valida Ulrich				×				
Reteporina flexuosa (Ulrich)								×
Rhombopora angustata Ulrich				×				
armata Ulrich								×
? asperula Ulrich				×				
attenuata Ulrich				×				
decipiens Ulrich						×		
dichotoma Ulrich			×	×				
elegantula Ulrich				×				
exigua Ulrich			×					
gracilis Ulrich			×					
incrassata Ulrich		×		×				
minor Ulrich								×
ohioensis Ulrich		×						
persimilis Ulrich								×
pulchella Ulrich								×
simulatrix Ulrich						×		
? spiralis Ulrich				×				
tabulata Ulrich								×
tenuirama Ulrich								×
transversalis Ulrich				×				
varians Ulrich				×				
wortheni Ulrich						×		
Septopora biserialis-nervata Ulrich								×
cestriensis Prout								×
decipiens Ulrich								×
rectistyla (Whitfield)								×
robusta-intermedia Ulrich								×
subquadrans Ulrich								×
Sphragiopora parasitica Ulrich								×

Lists of species—Continued.

MISSISSIPPIAN—Continued.

	Ki.	Osage.			St. Louis.			Ch.
		Wav.	Bur.	Keo.	War.	St. L.	Ste. G.	
Stenopora americana Ulrich				×				
americana-varsoviensis Ulrich					×			
angularis Ulrich				×				
cestriensis Ulrich								×
emaciata Ulrich				×				
intercalaris Ulrich				×				
intermittens Ulrich				×				
meekana Ulrich								×
montifera Ulrich				×				
ramosa Ulrich								×
rudis Ulrich								×
tuberculata (Prout)					×	×		×
Streblotrypa amplexa Ulrich		×						
(?Lioclema) denticulata Ulrich		×						
distincta Ulrich								×
hertzeri Ulrich		×		×				
major Ulrich		×		×				
multiporata Ulrich		×						
nicklesi Ulrich								×
obliqua Ulrich		×						
radialis Ulrich				×				
regularis Ulrich		×						
striata Ulrich		×						
subspinosa Ulrich								×
Strotopora dermata Ulrich				×				
foveolata Ulrich				×				
Tæniodictya cingulata Ulrich				×				
frondosa Ulrich				×				
interpolata Ulrich		×						
ramulosa Ulrich				×				
ramulosa-burlingtonensis Ulrich			×					
subrecta Ulrich						×		
Thamniscus divaricans Ulrich				×				
furcillatus Ulrich								×
ramulosus Ulrich								×
sculptilis Ulrich				×				

Lists of species—Continued.

MISSISSIPPIAN—Continued.

	Ki.	Osage.			St. Louis.			Ch.
		Wav.	Bur.	Keo.	War.	St. L.	Ste. G.	
Trematopora ? ? americana Miller	....	......	×	......	......	......	......	....
? ? fragilis Winchell	....	......	×	......	......	......	......	....
? ? vesiculosa Winchell	....	×	×	......	......	......	......	....
Worthenopora spatulata (Prout)	....	......	......	......	×	......	......	....
spinosa Ulrich	....	......	......	×	......	......	......	....

CARBONIFEROUS.

	Coal Measures.	Permian.
Acanthocladia fruticosa Ulrich	×	....
Chainodictyon laxum Foerste	×	....
laxum-minor Ulrich	×	....
Coscinium dictyotum (Meek)	....	....
Cystodictya carbonaria (Meek)	×	....
? concentrica (Prout)	....	....
Diploporaria biserialis Ulrich	×	....
Fenestella conradi Ulrich	×	....
corticata Prout	....	....
delicatula Ulrich	×	....
inæqualis Ulrich	×	....
intermedia Prout	....	....
limbata Foerste	×	....
lyelli Dawson	....	....
mimica Ulrich	×	....
modesta Ulrich	×	....
norwoodiana Prout	....	....
perelegans Meek	×	....
perminuta Ulrich	×	....
popeana Prout	....	×
remota Foerste	×	....
sevillensis Ulrich	×	....
shumardi Prout	....	....
subretiformis Prout	....	....
trituberculata Prout	....	....
variabilis Prout	....	....
wortheni Ulrich	×	....

Lists of species—Continued.

CARBONIFEROUS—Continued.

	Coal Measures.	Permian.
Fistulipora carbonaria Ulrich	×	
nodulifera Meek	×	
Pinnatopora bellula Ulrich	×	
nereidis (White)		
trilineata (Meek)	×	
whitii Foerste	×	
Polypora crassa Ulrich	×	
distincta Ulrich	×	
mexicana Prout		×
nodocarinata Ulrich	×	
spinulifera Ulrich	×	
stragula White		
submarginata Meek	×	
whitei Ulrich	×	
whitei-insculpta Ulrich	×	
Prismopora minima Ulrich	×	
? serrata Meek	×	
triangulata (White)	×	
Rhombopora crassa Ulrich	×	
exilis (Dawson)		
lepidodendroides Meek	×	
multipora Foerste	×	
nicklesi Ulrich	×	
Septopora biserialis (Swallow)	×	
biserialis-gracilis (Meek)	×	
biserialis-nervata Ulrich	×	
delicatula Ulrich	×	
pinnata Ulrich	×	
robusta Ulrich	×	
Stenopora carbonaria (Worthen)	×	
carbonaria-conferta Ulrich	×	
carbonaria-maculosa Ulrich	×	
ohioensis Foerste	×	
? signata Ulrich	×	
Streblotrypa prisca (Gabb and Horn)		
Thamniscus octonarius Ulrich	×	
sevillensis Ulrich	×	

TABLES OF GENERA AND SPECIES.

These tables show the number of species of the various genera present in the different geologic formations. The tables of the Trenton and Cincinnati periods show also the number of species common to two or more of the divisions and those restricted to one division.

TRENTON.

	Stones R.	Stones R. and Black R.	Black R.	Black R. and Trenton.	Trenton.	Stones R., Black R., Trenton.	Into Cincinnati.	Total.
CTENOSTOMATA.								
Ascodictyonidæ:								
Vinella	......	......	1	......	......	......	......	1
CYCLOSTOMATA.								
Diastoporidæ:								
Stomatopora	......	......	......	1	2	1	......	4
Proboscina	......	......	......	1	......	......	......	1
Berenicea	......	1	......	......	......	......	......	1
Diastoporina	......	......	......	......	1	......	......	1
Idmoneidæ:								
Protocrisina	......	......	......	......	1	......	......	1
Entalophoridæ:								
Mitoclema	1	......	......	......	......	1	......	2
Diploclema	......	......	......	......	......	1	......	1
Phaceloporidæ:								
Phacelopora	......	......	......	......	......	1	......	1
Ceramoporidæ:								
Ceramoporella	......	......	......	......	......	1	1	2
Crepipora	1	......	1	......	1	......	......	3
Cœloclema	......	......	......	......	1	......	......	1
Anolotichia	1	......	......	......	......	......	......	1
Ceramophylla	......	......	1	......	......	......	......	1
Bythotrypa	......	......	......	......	......	1	......	1
Scenellopora	1	......	......	......	......	......	......	1
Spatiopora	......	......	2	......	1	......	......	3
TREPOSTOMATA.								
Monticuliporidæ:								
Monticulipora	1	......	1	1	3	......	......	6
Atactoporella	......	......	3	......	1	......	......	4
Homotrypella	......	......	3	1	2	......	......	6
Homotrypa	3	1	4	......	3	......	......	11

Tables of genera and species—Continued.

TRENTON—Continued.

	Stones R.	Stones R. and Black R.	Black R.	Black R. and Trenton.	Trenton.	Stones R., Black R., Trenton.	Into Cincinnati.	Total.
TREPOSTOMATA—Continued.								
Monticuliporidæ:								
Prasopora[1]			3	1	8			13
Aspidopora		1			2			3
Mesotrypa			2		6			8
Amplexoporidæ:								
Amplexopora					1			1
Heterotrypidæ:								
Dekayella		1	4		1			6
Leptotrypa	2		1		1			4
Batostomellidæ:								
Bythopora			2					2
Eridotrypa					5			5
Constellariidæ:								
Constellaria					2			2
Stellipora					1			1
Nicholsonella	2		1					3
Trematoporidæ:								
Trematopora			3		2			5
Batostoma	2	1	7	1	2			13
Hemiphragma				1	1	1		3
Stromatotrypa		1						1
Monotrypa	1				4			5
Diplotrypa					3			3
Calloporidæ:								
Callopora	2	1	3	3	1			10
CRYPTOSTOMATA.								
Phylloporinidæ:								
Phylloporina	1		1	1	5			8
Drymotrypa					1			1
Arthrostylidæ:								
Arthrostylus	1		1		1			3
Helopora	2		1		2			5
Arthroclema			2		3			5
Nematopora					7			7

[1] One species Stones River and Trenton.

Tables of genera and species—Continued.

TRENTON—Continued.

	Stones R.	Stones R. and Black R.	Black R.	Black R. and Trenton.	Trenton.	Stones R., Black R., Trenton.	Into Cincinnati.	Total.
CRYPTOSTOMATA—Continued.								
Ptilodictyonidæ:								
Escharopora	4	1	2	......	2	......	......	9
Phænopora	......	......	......	......	1	......	......	1
Arthropora	......	1	1	......	1	......	......	3
Stictoporellidæ:								
Stictoporella	3	1	2	......	2	......	......	8
Stictopora	2	......	......	......	1	......	......	3
Rhinidictyonidæ:								
Rhinidictya	7	1	3	......	4	1	......	16
Eurydictya	......	......	......	1	1	......	......	2
Pachydictya	3	......	2	......	6	......	......	11
Phyllodictya	1	......	1	......	......	......	......	2
Trigonodictya	......	......	1	......	......	......	......	1
Total	41	11	59	12	93	8	1	226

CINCINNATI.

	Utica.	Utica and Lorraine.	Lorraine.	Lorraine and Richmond.	Richmond.	Utica, Lorraine, Richmond.	Utica, Richmond.	Total.
CTENOSTOMATA.								
Rhopalonariidæ:								
Rhopalonaria	......	......	......	1	......	......	......	1
Ascodictyonidæ:								
Vinella	......	......	1	......	......	......	......	1
CYCLOSTOMATA.								
Diastoporidæ:								
Stomatopora	1	......	......	1	1	2	......	5
Proboscina	1	......	......	2	......	......	......	3
Berenicea	1	......	......	1	......	......	......	2
Idmoneidæ:								
Protocrisina	......	......	......	......	1	......	......	1
Ceramoporidæ:								
Ceramoporella	1	1	......	1	3	1	......	7
Crepipora	2	......	2	......	1	......	......	5
Chiloporella	......	......	1	......	......	......	......	1

Tables of genera and species—Continued.

CINCINNATI—Continued.

	Utica.	Utica and Lorraine.	Lorraine.	Lorraine and Richmond.	Richmond.	Utica, Lorraine, Richmond.	Utica, Richmond.	Total.
CYCLOSTOMATA—Continued.								
Ceramoporidæ—Continued.								
Cœloclema	2		1					3
Anolotichia					1			1
Bythotrypa					1			1
Spatiopora	1		3	2	1			7
TREPOSTOMATA.								
Monticuliporidæ:								
Monticulipora			3		5			8
Atactoporella	2		4		1			7
Peronopora			1	1				2
Homotrypella					2			2
Homotrypa			2	2	1			5
Prasopora					1			1
Aspidopora	3							3
Mesotrypa					1			1
Amplexoporidæ:								
Amplexopora	2	1	4		1			8
Monotrypella	1				3			4
Discotrypa			1					1
Heterotrypidæ:								
Heterotrypa			5		4			9
Dekayella	3							3
Dekayia	1		4					5
Petigopora			3		1			4
Leptotrypa	2		7		1			10
Atactopora		1	1					2
Batostomellidæ:								
Bythopora	2		2		3			7
Eridotrypa					1			1
Lioclema					1			1
Lioclemella					5			5
Constellariidæ:								
Constellaria		1	2		4			7
Nicholsonella			1		1			2
Trematoporidæ:								
Batostoma	2				3			5
Hemiphragma	1				1			2

Tables of genera and species—Continued.

CINCINNATI—Continued.

	Utica.	Utica and Lorraine.	Lorraine.	Lorraine and Richmond.	Richmond.	Utica, Lorraine, Richmond.	Utica, Richmond.	Total.
TREPOSTOMATA—Continued.								
Trematoporidæ—Continued.								
Monotrypa	1				2			3
Diplotrypa					1			1
Calloporidæ:								
Callopora	4		5		1			10
Calloporella					3			3
CRYPTOSTOMATA.								
Phylloporinidæ:								
Phylloporina	1		1					2
Fenestellidæ:								
Fenestella					1			1
Arthrostylidæ:								
Arthrostylus	2							2
Helopora					3			3
Arthroclema					1			1
Sceptropora					1			1
Ptilodictyonidæ:								
Ptilodictya					6			6
Escharopora	1		4					5
Phænopora					1			1
Arthropora	1		1					2
Graptodictya					1			1
Stictoporellidæ:								
Stictoporella	1							1
Ptilotrypa					1			1
Rhinidictyonidæ:								
Rhinidictya	1				1			2
Eurydictya					2			2
Pachydictya					6			6
Dicranopora			1	1	2			4
Goniotrypa					1			1
CHILOSTOMATA.								
Palescharidæ:								
Paleschara							1	1
Total	40	4	60	12	83	3	1	203

Genera with number of species present in Paleozoic formations.

	Ordovician.			Silurian.				Devonian.			Mississippian.				Carbon.		Total species.
	Chz.	Tr.	Cin.	An.	Cl.	Ni.	L. H.	Or.	U. H.	Ha.	Ki.	Os.	S. L.	Ch.	C. M.	Per.	
CTENOSTOMATA.																	
Rhopalonariidæ:																	
Rhopalonaria			1														1
Ascodictyonidæ:																	
Ascodictyon										2							2
Vinella		1	1			1											3
CYCLOSTOMATA.																	
Diastoporidæ:																	
Stomatopora		4	5			2											8
Proboscina		1	3							1							5
Berenicea		1	2			2											6
Diastoporina		1															1
Hederella									1	6							6
Hernodia										1							1
Reptaria										2							2
Idmoneidæ:																	
Crisinella									1								1
Protocrisina		1	1														1
Entalophoridæ:																	
Mitoclema		2															2
Clonopora									2	1							3
Diploclema		1				1											2
Cystopora										1							1
Phaceloporidæ:																	
Phacelopora		1															1
Ceramoporidæ:																	
Ceramopora					1	6	3										10
Ceramoporella		2	7														9
Crepipora		4	5														8
Chiloporella			1														1
Cœloclema		1	3														4
Anolotichia		1	1														2
Ceramophylla		1															1
Bythotrypa		1	1														2
Scenellopora		1															1
Spatiopora		3	7														10
Fistuliporidæ:																	
Fistulipora						4	6		2	43		3	2	1	2		62
Cyclotrypa										2							2
Eridopora										2				2			4
Pinacotrypa										7							7
Chilotrypa						4	2		1					1			8
Strotopora										1		2					3
Meekopora						1				1		1	1	3			6
Lichenotrypa										1							1
Buskopora									1	3							4
Glossotrypa										1							1
Selenopora										2							2
Favicella										2							2
Cœlocaulis							2		1								3
Botrylloporidæ:																	
Botryllopora										1							1

Genera with number of species present in Paleozoic formations—Continued.

	Ordovician.			Silurian.				Devonian.			Mississippian.				Carbon.		Total species.
	Chz.	Tr.	Cin.	An.	Cl.	Ni.	L. H.	Or.	U. H.	Ha.	Ki.	Os.	S. L.	Ch.	C. M.	Per.	
TREPOSTOMATA.																	
Monticuliporidæ:																	
Monticulipora		6	8							2							16
Atactoporella		4	7														11
Peronopora			2														2
Homotrypella		6	2														8
Homotrypa		11	5		1	1											18
Prasopora		13	1														14
Aspidopora		3	3		2												8
Mesotrypa		8	1			1											10
Amplexoporidæ:																	
Amplexopora		1	8														8
Monotrypella			4			1	3			1							9
Petalotrypa										2							2
Discotrypa			1							1							2
Heterotrypidæ:																	
Heterotrypa			9							2							11
Dekayella		6	3														9
Dekayia			5							1							6
Petigopora			4														4
Leptotrypa		4	10			1				1							16
Atactopora			2														2
Batostomellidæ:																	
Batostomella						2							1	3			6
Bythopora		2	7			1											10
Callotrypa							7		2	1							10
Trematella									1	4							5
Eridotrypa		5	1			1	1			2							10
Stenopora												6	2	4	5		17
Anisotrypa													2	2			4
Lioclema			1			4	3			15	2	2	3	1			29
Lioclemella			5		1												6
Constellariidæ:																	
Constellaria		2	7														9
Stellipora		1															1
Nicholsonella		3	2														5
Idiotrypa						1											1
Trematoporidæ:																	
Trematopora		5				5											10
Batostoma		13	5														18
Hemiphragma		3	2														5
Stromatotrypa		1															1
Monotrypa		5	3				6			1							15
Diplotrypa		3	1														4
Calloporidæ:																	
Callopora		10	10		1	1	1										23
Calloporella			3														3
CRYPTOSTOMATA.																	
Phylloporinidæ:																	
Phylloporina	3	8	2		1	1											15
Drymotrypa		1				2	1										4

Genera with number of species present in Paleozoic formations—Continued.

	Ordivician.			Silurian.				Devonian.			Mississippian.				Carbon.		Total species.
	Chz.	Tr.	Cin.	An.	Cl.	Ni.	L. H.	Or.	U. H.	Ha.	Ki.	Os.	S. L.	Ch.	C. M.	Per.	
CRYPTOSTOMATA—Cont'd.																	
Fenestellidæ:																	
Fenestella			1		1	7	14		12	28		23	5	4	19	1	111
Semicoscinium						2	3		4	17							26
Fenestrapora										3							3
Isotrypa									2								2
Loculipora						1	1		1	1							4
Unitrypa							4		7	5							16
Hemitrypa					1		2		3	2		6	3				16
Helicopora						1				1							2
Archimedes												3	1	12			16
Polypora						5	10	1	24	17		8	4	6	8	1	82
Lyropora												1		6			7
Fenestralia													2				2
Thamniscus						1	3		1	2		2		2	2		13
Phyllopora										1							1
Reteporidra									1	3							3
Reteporina									4	4				1			8
Ptiloporella						1			2	1							4
Ptiloporina									4								4
Acanthocladiidæ:																	
Pinnatopora									3	1		11			4		19
Acanthocladia															1		1
Septopora														6	6		11
Ptilopora										3		4	1				8
Ichthyorachis							1										1
Diploporaria														1	1		2
Sphragioporidæ:																	
Sphragiopora														1			1
Arthrostylidæ:																	
Arthrostylus		3	2														4
Helopora		5	3	3	1	1											12
Arthroclema		5	1														6
Sceptropora			1		1												2
Nematopora		7		5	1	3											15
Rhabdomesontidæ:																	
Rhombopora										3		12	3	6	5		29
Rhabdomeson																	
Cœloconus													1	1			2
Bactropora										2		1					3
Orthopora							8		1	17							26
Acanthoclema									4	1		1					6
Nemataxis									1	1							2
Tropidopora									1								1
Streblotrypa										2		9		3	1		15
Chainodictyonidæ:																	
Chainodictyon															2		2
Ptilodictyonidæ:																	
Ptilodictya			6	3	4	1	1		1								16
Escharopora		9	5														14
Clathropora					2	3			1								5
Phænopora		1	1	2	8		2										14

Genera with number of species present in Paleozoic formations—Continued.

	Ordovician.			Silurian.				Devonian.			Mississippian.				Carbon.		Total species.
	Chz.	Tr.	Cin.	An.	Cl.	Ni.	L. H.	Or.	U. H.	Ha.	Ki.	Os.	S. L.	Ch.	C. M.	Per.	
CRYPTOSTOMATA—Cont'd.																	
Ptilodictyonidæ—Cont'd.																	
Arthropora		3	2														5
Graptodictya			1														1
Stictoporina										3							3
Stictoporellidæ:																	
Stictoporella		8	1														9
Ptilotrypa			1														1
Intrapora										1		1		1			3
Coscinella										2							2
Tæniodictya									1			5	1				7
Stictopora	1	3															4
Heliotrypa														1			1
Rhinidictyonidæ:																	
Rhinidictya	1	16	2														19
Eurydictya		2	2														4
Pachydictya		11	6	2	7	1											25
Phyllodictya		2															2
Euspilopora										4							4
Dicranopora			4	1			1										5
Goniotrypa			1														1
Trigonodictya		1			1												2
Cystodictyonidæ:																	
Cystodictya									8	17		8	2		2		35
Dichotrypa										1			5				6
Coscinium									1	2		1			1		5
Tæniopora										5							5
Thamnotrypa									1								1
Semiopora										1							1
Ptilocella										1							1
Acrogenia										1							1
Prismopora									1	4				1	3		9
Scalaripora										5							5
Glyptopora												2	6	1			8
Phractopora										1		3					4
Ceramella										1							1
Evactinopora												4					4
Actinotrypidæ:																	
Actinotrypa												1					1
Cycloporidæ:																	
Cyclopora												2					2
Cycloporella												2					2
Proutella												1					1
Worthenopora												1	1				2
Rhinoporidæ:																	
Rhinopora					2	1											3
Diamesopora					1	4											5
Lichenalia						1											1
Stictotrypa					1	3											3
CHILOSTOMATA.																	
Palescharidæ:																	
Paleschara			1			3	5			4							13

Genera with number of species present in Paleozoic formations—Continued.

SUMMARY OF SPECIES BY FAMILIES.

	Ordovician.			Silurian.				Devonian.			Mississippian.				Carbon.		Total species.
	Chz.	Tr.	Cin.	An.	Cl.	Ni.	L. H.	Or.	U. H.	Ha.	Ki.	Os.	S. L.	Ch.	C. M.	Per.	
CTENOSTOMATA.																	
Rhopalonariidæ	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	1
Ascodictyonidæ	....	1	1	....	....	1	....	....	....	2	....	....	....	....	....	....	5
CYCLOSTOMATA.																	
Diastoporidæ	....	7	10	....	....	4	....	....	1	10	....	....	....	....	....	....	29
Idmoneidæ	....	1	1	....	....	....	....	....	1	....	....	....	....	....	....	....	2
Entalophoridæ	....	3	....	....	....	1	....	....	2	2	....	....	....	....	....	....	8
Phaceloporidæ	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1
Ceramoporidæ	....	14	25	....	1	6	3	....	....	....	....	....	....	....	....	....	48
Fistuliporidæ	....	....	....	....	....	9	10	....	5	65	....	6	3	7	2	....	105
Botrylloporidæ	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	1
TREPOSTOMATA.																	
Monticuliporidæ	....	51	29	....	3	2	....	....	....	2	....	....	....	....	....	....	87
Amplexoporidæ	....	1	13	....	....	1	3	....	....	4	....	....	....	....	....	....	21
Heterotrypidæ	....	10	33	....	....	1	....	....	....	4	....	....	....	....	....	....	48
Batostomellidæ	....	7	14	....	1	8	11	....	3	22	2	8	8	10	5	....	97
Constellariidæ	....	6	9	....	....	1	....	....	....	....	....	....	....	....	....	....	16
Trematoporidæ	....	30	11	....	....	5	6	....	....	1	....	....	....	....	....	....	53
Calloporidæ	....	10	13	....	1	1	1	....	....	....	....	....	....	....	....	....	26
CRYPTOSTOMATA.																	
Phylloporinidæ	3	9	2	....	1	3	1	....	....	....	....	....	....	....	....	....	19
Fenestellidæ	....	....	1	....	2	18	37	1	65	85	....	43	15	31	29	2	20
Acanthocladiidæ	....	....	....	....	....	....	1	....	3	4	....	15	1	7	12	....	42
Sphragioporidæ	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	1
Arthrostylidæ	....	20	7	8	3	4	....	....	....	....	....	....	....	....	....	....	39
Rhabdomesontidæ	....	....	....	....	....	....	8	....	7	26	....	23	4	10	6	....	84
Chainodictyonidæ	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	....	2
Ptilodictyonidæ	....	13	15	5	14	4	3	....	2	3	....	....	....	....	....	....	58
Stictoporellidæ	1	11	2	....	....	....	....	....	1	3	....	6	1	2	....	....	27
Rhinidictyonidæ	1	32	15	3	8	1	1	....	....	4	....	....	....	....	....	....	62
Cystodictyonidæ	....	....	....	....	....	....	....	....	11	39	....	18	13	2	6	....	36
Actinotrypidæ	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	1
Cycloporidæ	....	....	....	....	....	....	....	....	....	....	....	6	1	....	....	....	7
Rhinoporidæ	....	....	....	....	4	9	....	....	....	....	....	....	....	....	....	....	12
CHILOSTOMATA.																	
Palescharidæ	....	....	1	....	....	3	5	....	....	4	....	....	....	....	....	....	13

SUMMARY OF SPECIES BY SUBORDERS.

	Chz.	Tr.	Cin.	An.	Cl.	Ni.	L. H.	Or.	U. H.	Ha.	Ki.	Os.	S. L.	Ch.	C. M.	Per.	Total species.
CTENOSTOMATA	....	1	2	....	....	1	....	....	....	2	....	....	....	....	....	....	6
CYCLOSTOMATA	....	26	36	....	1	20	13	....	9	78	....	6	3	7	2	....	194
TREPOSTOMATA	....	115	122	....	5	19	21	....	3	33	2	8	8	10	5	....	348
CRYTOSTOMATA	5	85	42	16	32	39	51	1	89	164	....	112	35	53	55	2	760
CHILOSTOMATA	....	....	1	....	....	3	5	....	....	4	....	....	....	....	....	....	13
Total	5	227	203	16	38	82	90	1	101	281	2	126	46	70	62	2	1,321

Families with number of genera present in Paleozoic formations.

	Ordovician.			Silurian.				Devonian.			Mississippian.				Carbon.		Total genera.
	Chz.	Tr.	Cin.	An.	Cl.	Ni.	L. H.	Or.	U. H.	Ha.	Ki.	Os.	S.L.	Ch.	C. M.	Per.	
CTENOSTOMATA.																	
Rhopalonariidæ			1														1
Ascodictyonidæ		1	1			1				1							2
CYCLOSTOMATA.																	
Diastoporidæ		4	3			2			1	4							7
Idmoneidæ		1	1						1								2
Entalophoridæ		2				1			1	2							4
Phaceloporidæ		1															1
Ceramoporidæ		8	7		1	1	1										10
Fistuliporidæ						3	3		4	11		3	2	4	1		13
Botrylloporidæ										1							1
TREPOSTOMATA.																	
Monticuliporidæ		7	8		2	2				1							8
Amplexoporidæ		1	3			1	1			3							4
Heterotrypidæ		2	6			1				3							6
Batostomellidæ		2	4		1	4	3		2	4	1	2	3	3	1		9
Constellariidæ		3	2			1											4
Trematoporidæ		6	4			1	1			1							7
Calloporidæ		1	2		1	1	1										2
CRYPTOSTOMATA.																	
Phylloporinidæ	1	2	1		1	2	1										2
Fenestellidæ			1		2	7	7	1	12	13		6	5	6	3	2	18
Acanthocladiidæ							1		1	2		2	1	2	4		6
Sphragioporidæ														1			1
Arthrostylidæ		4	4	2	3	2											5
Rhabdomesontidæ							1		4	6		4	2	3	2		8
Chainodictyonidæ															1		1
Ptilodictyonidæ		3	5	2	3	2	2		2	1							7
Stictoporellidæ	1	2	2						1	2		2	1	2			7
Rhinidictyonidæ	1	5	5	2	2	1	1			1							8
Cystodictyonidæ									4	11		5	3	2	3		14
Actinotrypidæ												1					1
Cycloporidæ												4	1				4
Rhinoporidæ					3	4											4
CHILOSTOMATA.																	
Palescharidæ			1			1	1			1							1

SUMMARY OF GENERA BY SUBORDERS.

CTENOSTOMATA		1	2			1				1							3
CYCLOSTOMATA		16	11		1	7	4		7	18		3	2	4	1		38
TREPOSTOMATA		22	29		4	11	6		2	12	1	2	3	3	1		40
CRYPTOSTOMATA	3	16	18	6	14	18	13	1	24	36		24	13	16	13	2	86
CHILOSTOMATA			1			1	1			1							1
Total	3	55	61	6	19	38	24	1	33	68	1	29	18	23	15	2	168

GENERAL NOTES.

VALUE OF BRYOZOA IN STRATIGRAPHIC WORK.

The value of the bryozoa in stratigraphic work has scarcely yet begun to be appreciated. In American Paleozoic strata they are preeminently the fossils to be relied upon in correlation work. They are nearly always abundant, and even when poorly preserved exteriorly can be identified by microscopic sections. Crinoids and crustacea are usually too scarce; mollusca, abundant in some formations, are almost wanting in others, and likely to be poorly preserved; vertebrate remains are too few, and usually local in distribution. The brachiopods are also usually abundant in all Paleozoic strata, but have commonly too great a range vertically to be trusty guides in close work.

Because to the unaided eye there seems little variation of form among the bryozoa, they have been generally neglected by collectors and geologists. Early writers are also to some extent responsible for this neglect, for they failed to discriminate the different species, and made a few names, such as *Chætetes lycoperdon*, *Stenopora fibrosa*, etc., serve for a multitude of diverse forms. It is no doubt true, and this is another cause for the neglect of the bryozoa, that their discrimination does require good powers of observation and careful, often tedious, study. Furthermore, the number of species is appalling. Somewhat more than 1,300 species have been described from American Paleozoic formations, yet these are probably but a half or a third of the distinguishable forms present. These various considerations compel greater labor for the mastery of the bryozoa than for any other class. The determination—at least the first determination—of a species often, and among the Trepostomata nearly always, requires the preparation of microscopic sections, a tedious operation at best. However, when once a species has been thoroughly worked out, it can generally be distinguished externally from associated forms of similar appearance by quite constant differences, which often seem trifling, and yet are doubtless of morphological importance.

A beginning only has been made in the work of determining the geographical distribution ot species and genera and elucidating the many obscure questions regarding the migration of faunas in the ancient seas, their extinction or evolution, their reapparition, and like phenomena.

COLLECTION AND STUDY.

In sandstone formations bryozoa—and this is true of most other fossils as well—are practically wanting, but there is scarcely a limestone formation, especially if there be shale alternations, in which they are not abundant. Generally they are calcareous, and in this condition are easily sectioned for microscopic study. Sometimes, however, they are found silicified. Then the internal structure is to a greater or less extent obliterated, and they can rarely be successfully sectioned for study. Sometimes their substance has been dissolved away, leaving a perfect mold in the matrix. A gutta-percha impression will then often give a very satisfactory idea of the exterior of the original fossil.

The best specimens are usually obtained from the shales between or just above or below limestone layers. The smaller forms may be obtained free by carefully washing the shales and picking them out from the débris. Some kinds of shales or clay will wash away better if first allowed to become thoroughly dry. Others do better if allowed to soak in water for a longer or a shorter period of time.

Often the surface characters are obscured by the clayey matrix. This may be removed by the use of caustic potash. The deliquescence of small pieces of this substance, which needs to be handled gingerly with unprotected hands, laid upon the fossil loosens the clay, which is then easily brushed off. Some workers accomplish the same result by placing their specimens in a saturated solution of Glauber's salts, which in crystallizing loosens the clay.

MAKING OF SECTIONS.

The preparation of thin sections for microscopic examination is indispensable if one would understand the bryozoa. Directions for making sections of fossil bryozoa, more particularly the Paleozoic, are given in the report of the Geological Survey of Illinois, VIII, 1890, p. 292, and in the Geology of Minnesota, III, 1893, p. 100, and with a few additional notes are here repeated. Some experience and considerable care are required to produce satisfactory sections. In the absence of a lathe or machine for cutting rock sections, the following method will give as good and, with experience, even better results than the lathe.

The materials required are (1) a piece of sandstone, not too gritty, 8 or 10 inches wide, 18 or 20 inches long, and of sufficient thickness to insure stability; (2) a water hone 1 inch thick, a little wider, and 4 or 5 inches long; (3) a block of wood (walnut is the best) 1 inch thick, 2 inches wide, and 4½ inches long. The edges of the upper side of this block should be rounded to fit the hand, while in the lower side a shallow excavation $1\frac{1}{16}$ by $3\frac{1}{8}$ inches is made to fit the ordinary glass slip. The excavation must be so made that the central portion of the glass slip will bear upon the block, while the ends may have a little play.

The procedure for sectioning specimens large enough to be handled without difficulty is as follows: With a strong pair of "wire nippers" a fragment is pinched from the specimen to be sectioned. This fragment is rubbed upon the sandstone until the surface is perfectly flat. In doing this the greatest care must be exercised to retain or obtain, as the case may be, the desired angle. This surface is smoothed upon the hone, and the fragment is ready for mounting. A drop of Canada balsam is placed upon the center of a glass slip of the usual size, which, for economy's sake, may be cut from ordinary window glass, and the smoothed face of the fragment upon it. The slip is now heated on a heating stage or over a lamp and the Canada balsam allowed to boil for a certain time, the length of which must be learned by experience. The thickness of the glass and the amount of gum are factors to be considered, but in general it may be stated that with a slide of average thickness and a medium amount of gum the boiling is complete when the edges of the balsam commence to turn brown. The slip is then laid upon a horizontal piece of wood to cool. After it is cold the balsam should be tested. The exact hardness required must be intermediate between brittleness and the point where the finger nail can make an impression upon it. If too soft, the slip must be carefully reheated; if too hard, fresh gum and reheating may suffice, but it is better to remove the fragment, clean it and the slide, and remount. If of the proper hardness, the slip is placed in the excavation of the block, which has been dipped into water to secure adhesion, and the superfluous material is rubbed away upon the sandstone. When nearly thin enough the slide is taken out of the block and finished upon the hone. As the glass slip has become scratched and generally unsightly during the foregoing process, the section may be transferred to a good slip, mounted, and covered in the usual way for permanent preservation. The slide should be carefully labeled, so that it can always be known from which particular specimen the section was made.

Specimens too small to be worked in the manner above described—as, for example, small forms of Bythopora, Rhombopora, or Streblotrypa—may be sectioned in the following way: Place a little balsam on a slip and heat it, but only enough to partially harden it. Into this heated balsam place several specimens without any rubbing. After cooling rub down a little carefully; reheat cautiously, and with a sharp-pointed instrument turn one or more specimens so that the smoothed face is against the glass. Now cool and rub down farther. Again cautiously reheat, and turn the specimens which have not yet been turned. After cooling rub again until the sections are thin enough for microscopic examination, and finish as before.

These sections must be prepared with a knowledge of certain structural features. The zoarium of most bryozoa is composed of two zones, an inner, in which the zoœcia are immature, and an outer or peripheral, in which the zoœcia are in the mature state, and accessory features, such as acanthopores and mesopores, are developed. To observe all these features usually three sections are needed, a vertical, or, in ramose or frondescent forms, a longitudinal parallel with the axis, a transverse, which cuts across the axis, and a tangential, which is parallel to the surface and close enough to it to show the structures developed in the peripheral region. Of bifoliate forms two tangential sections are needed, one close to the surface and another near the middle (mesotheca), though often one tangential section may be made so as to show all the features.

Care must be taken to select specimens that have not suffered from compression. Sections of specimens compressed or otherwise distorted have occasionally given rise to grave errors, as, for example, when Waagen and Wentzel, misled by sections of specimens of the Fistuliporidæ with the axial region crushed, believed they had found evidence of the development of zoœcia from the intermediate cœnenchymal (vesicular) tissue.

BIBLIOGRAPHY AND INDEX.

CHRONOLOGICAL CATALOGUE OF PAPERS CONTAINING DESCRIPTIONS AND ILLUSTRATIONS OF AMERICAN PALEOZOIC BRYOZOA.

[Papers in which an asterisk (*) precedes the name of the author are of special importance to the student of bryozoa.]

1832.

Eaton, Amos. Geological Text-book for aiding the study of North American Geology, edition 2, 1832. 134 pp. Paleontology, 22 pp., 5 pls.

Contains a brief description of Flustra carbaseoides, n. sp. The name has not come into use.

1840.

Troost, Gerard. Organic remains discovered in the strata of Tennessee. (Fifth Geol. Rep. Tennessee, 1840, pp. 45–76.)

This is known as "Troost's Catalogue." Two species of bryozoa, Escharia ovatopora and reticulata, are in the list, but the descriptions are so inadequate that they have never since been recognized.

1842.

Orbigny, Alcide d'. Voyage dans l'Amérique Méridionale. Tome III. Paris, 1842.

In this work Ceriopora ramosa and Retepora flexuosa are described from the Carboniferous of Bolivia. These are the only Paleozoic bryozoa made known from South America, so far as we know, but it is doubtful whether the forms can be recognized from the descriptions or figures without material from the typical locality.

Owen, David Dale. Regarding human footprints in solid limestone. (Amer. Jour. Sci. Arts, ser. 1, XLIII, p. 19, fig. 2.)

The author gives a figure of Archimedes, calling it Retepora Archimedes, and states that the name was given by Leseuer. The latter, however, seems never to have published the name.

Vanuxem, Lardner. Geology of New York, Part III, comprising the survey of the third geological district. Albany, 1842.

On page 46 a figure is given of the "puff-ball Favosite (Favosites lycopodites)" from the Trenton. The form can not be identified.

1843.

Castelnau, F. de. Essai sur le Système Silurien de l'Amérique Septentrionale. Paris, 1843, 56 pp., 25 pls.

Contains—

Gorgonia repisteria (Goldfuss), p. 50, pl. xxiv, 3; from Schoharie, New York.
Gorgonia anticorum n. sp., p. 50, pl. xxiv, 1; from Lake Huron.
Gorgonia siluriana n. sp., p. 50; from Lake Huron.
Eschara scalpellum (Murchison), p. 50; from Isles Mantoulines.

The descriptions are so meager that no one has succeeded in identifying any of these forms.

1846.

Dana, James D. Zoophytes. (Wilkes's U. S. Exploring Expedition, VIII, Philadelphia, 1846, 740 pp., 61 plates in atlas.)

This work contains a description of Lonsdale's genus Stenopora and of a new genus Constellaria (p. 537), both being considered corals by the author. The latter was established for a species named Ceriopora constellata on plates of Western Fossils by Van Cleve. The form was later erroneously identified as the Stellipora antheloidea of Hall and became currently known as Constellaria antheloidea, Dana's name Constellaria having replaced Hall's Stellipora.

1847.

* **Hall, James.** Paleontology of New York, Vol. I. Albany, 1847. 338 pp., 98 pls.

About twenty new species of bryozoa from the Trenton and Chazy periods are described in this greatest of early works on American paleontology. The new genera established are Stictopora, Escharopora, and Stellipora. As is usual with the early work on fossil bryozoa, both the descriptions and the figures leave much to be desired. Even to-day several of the species are not satisfactorily recognized, while the number and diversity of distinguishable forms referred to "Chætetes lycoperdon" is distressing to the modern student.

1850.

Orbigny, Alcide d'. Prodrome de Paleontologie, Tome I. Paris, 1850.

In this extensive catalogue the following American paleozoic bryozoa are listed: Ptilodictya cruciformis, Ptilodictya pavonia, Sulcopora fenestrata, Subretepora reticulata, Enallopora perantiqua, Constellaria antheloidea, and the new genus Monticulipora with the species mammulata, ramosa, frondosa, and filiasa. Most of the names are accompanied by quite inadequate descriptive remarks, and the validity of those now recognized depends upon the work of subsequent authors. Sulcopora, Subretepora, and Enallopora are new generic terms founded not upon the fossils themselves, but upon Hall's incorrect descriptions and figures of Stictopora fenestrata, Intricaria reticulata and Gorgonia perantiqua, respectively. Resting, therefore, upon fictitious characters, these names have deservedly failed to gain recognition.

1851.

Hall, James. Description of new or rare species of fossils from the Paleozoic series. (Foster and Whitney's Report on the Geology of the Lake Superior Land District, 1851. Bryozoa, pp. 206–208, pls. xxiv, xxv.)

Among the descriptions occur three of bryozoa: Phænopora multipora, Clathropora flabellata n. sp., and Chaetetes lycoperdon Say.

Hall, James. New Genera of fossil Corals. (Amer. Jour. Sci. Arts, ser. 2, XI, 1851, pp. 398–401.)

The following new genera, which soon appeared more fully described in Paleontology of New York, II, are described for the first time: Helopora, Phænopora, Rhinopora, Callopora, Trematopora, Clathropora, Ceramopora, Lichenalia, Sagenella.

Milne-Edwards, Henri, and **Haime, Jules.** Monographie des Polypiers Fossiles des Terrains Paléozoiques. (Archives du Museum, V, 1851, 502 pp., 20 pls.)

The following bryozoa from America are described: Chætetes filiasa (d'Orbigny), dalii n. sp., ramosus (d'Orbigny), mammulatus (d'Orbigny), frondosus (d'Orbigny), pavonia (d'Orbigny), tuberculatus n. sp., rugosus n. sp., Dekayia n. gen., D. aspera n. sp., Constellaria Dana, C. antheloidea (Hall).

Rolle, Friedrich. Ueber zwei neue devonische Korallen einer neuen Sippe, Reptaria. (Leonhard und Bronn's Neues Jahrbuch, 1851, pp. 810–814, pl. ixB.)

Describes the new genus Reptaria with two species, R. orthoceratum n. sp., from the Eifel of Germany, and R. stolonifera n. sp., from Cazenovia, New York.

1852.

* **Hall, James.** Paleontology of New York, Vol. II. Albany, 1852. Bryozoa, pp. 40–52, 144–173, pls. xvii–xix, xl–xlE.

This work gives a full account as then known of the bryozoa of the Clinton and Niagara groups of New York. About forty species are described, which, with few exceptions, are easily identified from the descriptions and figures. The following are characterized as new genera: Helopora, Phænopora, Rhinopora, Callopora, Trematopora, Clathropora, Ceramopora, Lichenalia, Sagenella. Species are also described referred to Chætetes, Stictopora, Retepora, Fenestella, Diamesopora (a new genus whose characterization is reserved for future study), Hornera, Polypora.

1854.

Milne-Edwards, Henri, and **Haime, Jules.** A Monograph of the British fossil Corals. (Publications Palæontographical Society, London, 1854.)

In a footnote on page 265 the authors refer to the genus Monticulipora the following forms, which, in their French work (Monographie des Polypiers Fossiles des Terrains Paleozoiques, pp. 266-279), they had referred to Chætetes: M. filiasa d'Orbigny, C. Dalei Milne-Edwards and Haime, M. ramosa d'Orbigny, M. mammulata d'Orbigny, M. frondosa d'Orbigny, Ptilodictya pavonia d'Orbigny, C. rugosus Milne-Edwards and Haime. They also describe the genera Fistulipora M'Coy and Stenopora Lonsdale.

Shumard, Benjamin F. Description of the species of Carboniferous and Cretaceous fossils collected. (Marcy's Report of the U. S. Exploration of the Red River of Louisiana, 1854, Appendix E, pp. 186–199, 6 pls.)

Archimedipora archimedes (page 175, pl. i, 6) is described.

1857.

* **Hall, James.** Remarks upon the genus Archimedes, or Fenestella, from the Carboniferous limestones of the Mississippi Valley. (Amer. Jour. Sci. Arts, ser. 2, XXIII, pp. 203–204.)

This paper contains a general discussion of characters and relationship of Archimedes and Fenestella.

* **Hall, James.** Observations on the genus Archimedes, or Fenestella, with description of species. (Proc. Amer. Assoc. Adv. Sci., X, 1857, pp. 176–180.)

Archimedes and Lyropora are defined as subgeneric terms under Fenestella, and the following species are described: Fenestella (Archimedes) Owenana, Wortheni, Swallovana, Meekana, laxa, Fenestella (Lyropora) lyra, quincuncialis, subquadrans. Unfortunately no figures accompany the paper.

1858.

Hall, James. Geological Survey of Iowa. Volume I, Part II, Paleontology, 1858. Bryozoa, pp. 651–653, pl. xxii.

Descriptions and good figures are given of Archimedes wortheni, reversa n. sp., Ptylopora prouti n. sp., and a description only of Callopora punctata n. sp.

* **Prout, Hiram A.** Description of new species of Bryozoa from Texas and New Mexico. (Trans. St. Louis Acad. Sci., I, 1858, pp. 228–235.)

Describes the following species from Carboniferous and Permian formations: Fenestella trituberculata, Popeana, corticata, intermedia, variabilis, Shumardii, Norwoodiana, subretiformis, Eschara? concentrica, ? tuberculata. No illustrations were given. Some of these may never be identified.

* **Prout, Hiram A.** First of a series of descriptions of Carboniferous Bryozoa. (Trans. St. Louis Acad. Sci., I, 1858, pp. 235–237, pl. xv.)

Describes Fenestralia n. subg., F. St. Ludovici, Fenestella plumosa, Polypora varsoviensis.

* **Prout, Hiram A.** Second series of descriptions of Bryozoa, from the Paleozoic rocks of the Western States and Territories. (Trans. St. Louis Acad. Sci., I, 1858, pp. 266–273, pls. xv, xvi.)

Contains descriptions of Coscinium Keyserling, C. cyclops Keyserling, cribriformis Prout, Keyserlingi Prout, Polypora Mexicana Prout, Shumardii Prout, intermedia Prout.

Swallow, George C. Fossils of the Permian rocks of Kansas. (Trans. St. Louis Acad. Sci., I, 1858, pp. 178–197.)

Proposes the name Synocladia biserialis for a form which he thinks may be Synocladia virgulacea Phillips, and the name Acanthocladia americana for a form which he thinks may be Acanthocladia anceps ? Schlotheim. Also notes a form which he refers to Phyllopora ehrenbergi Geinitz.

1859.

Billings, E. Fossils of the Chazy Limestone, with descriptions of new species. (Canadian Naturalist and Geologist, IV, 1859, pp. 426–470.)

Contains rather brief descriptions of the monticuliporoids Stenopora adherens and patula.

***Prout, Hiram A.** Third series of descriptions of Bryozoa from the Paleozoic rocks of the Western States and Territories. (Trans. St. Louis Acad. Sci., I, 1859, pp. 443–452, pls. xvii, xviii.)

Contains descriptions of Semicoscinium n. g., S. rhomboideum n. sp., Fenestella hemitrypa n. sp., Limaria Steininger, L. falcata n. sp., Flustra spatulata n. sp., tuberculata n. sp., Septopora n. g., S. Cestriensis n. sp., Polypora tuberculata n. sp., biarmica Keyserling, Fenestella banyana n. sp.

1860.

Hall, James. Descriptions of new species of fossils from the Silurian rocks of Nova Scotia. (Canadian Naturalist and Geologist, V, 1860, pp. 144–159.)

The author notes the occurrence of a variety of Helopora fragilis, which he names var. acadiensis, from the "Arisaig Series."

Milne-Edwards, H. Histoire Naturelle des Coralliaires ou polypes propriement dits. Tome III. Paris, 1860. [Monticuliporoids, pp. 272–284.]

In this work the descriptions are repeated of the American forms described in the joint work of Milne-Edwards and Haime, Monographie des Polypiers Fossiles des Terrains Paleozoiques, 1851.

***Prout, Hiram A.** Fourth series of descriptions of Bryozoa from the Paleozoic rocks of the Western States and Territories. (Trans. St. Louis Acad. Sci., I, 1860, pp. 571–581.)

Contains descriptions, without figures, of Coscinium Wortheni n. sp., elegans n. sp., plumosum n. sp., Michelinia n. sp., saganella n. sp., tuberculatum n. sp., asteria n. sp., escharense, n. sp., Cyclopora n. g., C. fungia n. sp., discoidea n. sp., polymorpha n. sp., Jamesii n. sp., Semicoscinium Eriense n. sp., tuberculatum n. sp., Polypora Halliana n. sp., gracilis n. sp.

Some of these appear again, with figures, in Geological Survey of Illinois, II. Considering the early date at which Prout's work was done, it is of a very high order.

Roemer, Ferdinand. Die Silurische Fauna des westlichen Tennessee. Breslau, 1860. 97 pp., 5 pls.

Two species of bryozoa from the Niagara of Tennessee are described: Thecostegites hemisphæricus n. sp., and Fenestella acuticosta n. sp.

1862.

Billings, E. Paleozoic Fossils. Volume I, 1862. (Geological Survey of Canada.)

Contains descriptions of Arthroclema n. g., and A. pulchella n. sp. (pp. 54–55). The descriptions are very good considering the date.

1863.

Winchell, Alexander. Descriptions of fossils from the yellow sandstones lying beneath the "Burlington limestone" at Burlington, Iowa. (Proc. Acad. Nat. Sci. Philadelphia, 1863, pp. 2–25.)

Describes Trematopora ? vesiculosa n. sp. and Trematopora ? fragilis n. sp.

1865.

Billings, E. Notice of some new genera and species of Paleozoic fossils. (Canadian Naturalist, new ser., II, 1865, pp. 425-432.)

Contains a meager description of Stenopora bulbosa, a massy monticuliporoid.

Meek, F. B. and **Worthen, A. H.** Description of new species of Crinoidea, etc., from the Paleozoic rocks of Illinois and some adjoining States. (Proc. Acad. Nat. Sci. Philadelphia, 1865, pp. 155-166.)

Characterize Evactinopora (nov. gen.) radiata n. sp. (p. 165).

1866.

* **Billings, E.** Catalogue of the Silurian fossils of the Island of Anticosti, with descriptions of some new genera and species. (Geological Survey of Canada, Montreal, 1866. 93 pp.)

Contains descriptions of the following new species: Ptilodictya fragilis, nitidula, canadensis, gladiola, excellens, sulcata, superba, rustica, tenera, arguta, alcyone, Helopora lineata, formosa, concava, strigosa, nodosa, lineopora, armata, bellula, striatopora, irregularis, Circe, varipora.

The descriptions give no structural details. Some of the forms it may not be possible to recognize; a few others may prove to be synonyms.

* **Prout, Hiram A.** Descriptions of new species of Bryozoa. (Trans. St. Louis Acad. Sci., II, 1866, pp. 410-413.)

The species described are Fenestella nodosa, dilata, bifurcata, Polypora imbricata, rigida, Retepora hamiltonensis, Ptilodictya (Stictopora) variabilis.

* **Prout, Hiram A.** Descriptions of Polyzoa from the Paleozoic rocks. (Geological Survey of Illinois, II, 1866, pp. 412-423, pls. xxi, xxii.)

Gives descriptions with figures of Coscinium Wortheni, elegans, plumosum, Michelinia, saganella, tuberculatum, asteria, Cyclopora, C. fungia, discoidea, polymorpha, Polypora Halliana, gracilis, Hamiltonensis. These had all but the last previously appeared in the Trans. St. Louis Acad. Sci., I, 1860.

* **Rominger, Carl.** Observations on Chætetes and some related genera, in regard to their systematic position, with an appended description of some new species. (Proc. Acad. Nat. Sci. Philadelphia, 1866, pp. 113-123.)

After a general discussion descriptions are given of a number of species, including, besides the Stellipora antheloidea Hall, Trematopora tubulosa Hall, Ceramopora foliacea Hall, the following new species: Chætetes quadratus, decipiens, Callopora missouriensis, Fistulipora neglecta, Halli, lunata, helios, stellifera, sulcata, minuta, acervulosa, spinulifera, Eriensis, utriculus, crassa, elegans, Spergenensis, flabellum, trifolia, compressa, peculiaris. The descriptions are unaccompanied by figures, but are usually sufficient for identification—a decided merit in a work of that date.

Winchell, Alexander. A report on the Lower Peninsula of Michigan. Ann Harbor, 1866. 97 pp. Paleontology, pp. 83-97.

Brief descriptions of the following bryozoa are included: Fistulipora labiosa, Saffordi, Callopora punctillata, Chætetes Hamiltonensis, microscopica, Fenestella eximia, filitexta, Stictopora sulcata.

1867.

Geinitz, Hans Bruno. Carbonformation und Dyas in Nebraska. (Verhandlungen der kais. Leopoldino-Carolinischen Deutschen Akademie der Naturforscher, XXXIII, 1867, pp. i–xii, 1–91, 5 pls.) Also separate, Dresden, 1866, 4to. Bryozoa, pp. 66–72, pl. v.

The author identified Permian forms from Nebraska with forms from the Dyas of Europe. Meek later showed that the identifications were erroneous.

1868.

Dawson, J. W. Acadian Geology, edition 2. Montreal, 1868. Bryozoa, pp. 287–289.

Contains rather meager descriptions of Stenopora exilis n. sp., Chætetes tumidus Milne-Edwards and Haime, Fenestella lyelli n. sp.

Meek, F. B., and **Worthen, A. H.** Paleontology of Illinois. (Geological Survey of Illinois, III, 1868.) Bryozoa, pp. 501–504.

Descriptions are given of Evactinopora and three species—E. radiata, sexradiata, grandis, and of Fenestella (Lyropora) retrorsa.

1869.

Safford, J. M. Geology of Tennessee. Nashville, 1869.

On page 286 the following new species are named: Ptilodictya symmetrica, explicans, multiramis, ? Libana; the last one is very briefly characterized.

1870.

* **Meek, F. B.**, and **Worthen, A. H.** Note on the relations of Synocladia King 1849 to the proposed genus Septopora Prout 1858. (Proc. Acad. Nat. Sci. Philadelphia, 1870, pp. 15–18.)

1871.

Meek, F. B. Description of new species of invertebrate fossils from the Carboniferous and Devonian rocks of Ohio. (Proc. Acad. Nat. Sci. Philadelphia, 1871, pp. 57–93.)

Contains a description of Ptilodictya (Stictopora) Gilberti.

Meek, F. B. Descriptions of new western Paleozoic fossils mainly from the Cincinnati group of the Lower Silurian series of Ohio. (Proc. Acad. Nat. Sci. Philadelphia, 1871, pp. 308–336.)

Contains a description of Ptilodictya (Stictopora) Shafferi.

1872.

Meek, F. B. Paleontological Report. (Hayden's Sixth Ann. Rep. U. S. Geol. Sur. of the Territories, 1872, pp. 431–518.)

Contains description of Ptilodictya (Stictopora) dictyota.

* **Meek, F. B.** Report on the Paleontology of Eastern Nebraska, with some remarks on the Carboniferous rocks of that district. (Hayden's Final Report of the U. S. Geol. Sur. of Nebraska and portions of adjacent Territories. Washington, 1872. 264 pp., 11 pls. Part II, Paleontology, pp. 81–264.) Bryozoa, pp. 141–158.

The author gives full and critical descriptions and figures of Fenestella sp. (Fenestella plebeia (Geinitz), Shumardi Prout, submarginata Meek, Polypora sp. ind., Synocladia biserialis Swallow, Glauconome trilineata Meek, Rhombopora Meek, R. lepidodendroides Meek, and Fistulipora nodulifera Meek.

1873.

Hall, James, and **Whitfield, R. P.** Descriptions of new species of fossils from the Devonian of Iowa. (Twenty-third Annual Report New York State Museum Nat. Hist., 1873, pp. 223–239, 5 pls.)

Contains descriptions of Fistulipora occidens n. sp. and Stomatopora ? alternata n. sp.

Meek, F. B. Descriptions of invertebrate fossils of the Silurian and Devonian systems. (Paleontology of Ohio, I, 1873, pp. 1–243, pls. i–xxii.)

Contains descriptions of Ptilodictya (Stictopora) Shafferi, Gilberti, lichenoides.

1874.

Billings, E. Paleozoic Fossils, Vol. II, Part I, 1874. 144 pp., 9 pls. (Memoirs of the Geological Survey of Canada.)

Contains descriptions of two species of bryozoa from the Gaspé limestone of Canada, Polypora ? Psyche n. sp., and Ptilodictya tarda n. sp.

* **Hall, James.** Descriptions of Bryozoa and Corals of the Lower Helderberg group. (Twenty-sixth Ann. Rep. New York State Museum Nat. Hist., 1874, pp. 93–115.)

This paper is devoted to the bryozoan fauna of the Lower Helderberg group. Descriptions only are given. Figures and fuller descriptions are later given in the Paleontology of New York, VI. Thirty-four new species are described, referred to the genera Fenestella, Polypora, Hemitrypa, Ichthyorachis, Escharopora, Callopora, Trematopora, Ceramopora, Chætetes, and Paleschara, the last a new genus whose systematic position is still somewhat doubtful.

* **Miller, S. A.** Observations upon Stenopora fibrosa and the genus Chætetes. (Cincinnati Quarterly Journal of Science, I, 1874, pp. 368–375.)

After a general discussion the writer gives descriptions of Stenopora Lonsdale, Stenopora fibrosa Goldfuss 1826 from Lexington, Kentucky, Stenopora lycoperdon Say, Chætetes Fischer, Chætetes petropolitanus (Pander). These are all incorrect identifications.

* **Nicholson, H. Alleyne.** Summary of recent researches on the Paleontology of the Province of Ontario, with brief descriptions of some new genera. (Canadian Journal, new ser., XIV, 1874, pp. 125–136.)

The new genera Cryptopora, Carinopora, Tæniopora, and Botryllopora are described.

* **Nicholson, H. Alleyne.** Descriptions of two new genera and species of Polyzoa from the Devonian rocks. (Ann. Mag. Nat. Hist., ser. 4, XIII, 1874, pp. 77–85.)

The author describes Cryptopora n. g. with the new species C. mirabilis and Carinopora n. g. with the species Hindei n. sp. Both genera have proved untenable, being founded upon imperfect material in a peculiar state of preservation.

Nicholson, H. Alleyne. Descriptions of new fossils from the Devonian formation of Canada West. (Geol. Mag. new ser., I, 1874, pp. 10–16, 54–60, 117–126, 159–163, 197–201, pls. ii, iv, vi, ix.)

This series of papers contains the descriptions of a large number of Corniferous and Hamilton fossils, including bryozoa, which are incorporated in the author's Report on the Paleontology of the Province of Ontario, 1874.

* **Nicholson, H. Alleyne.** Descriptions of species of Chætetes from the Lower Silurian rocks of North America. (Quar. Jour. Geol. Soc. London, XXX, 1874, pp. 499–515, pls. xxix, xxx.)

The author gives a description of Stenopora Lonsdale and nineteen species of Monticuliporoids mainly from the Cincinnati group of Ohio, all of which he refers to the genus Chætetes. These are all redescribed in the Paleontology of Ohio, vol. II, which made its appearance in the following year.

* **Nicholson, H. Alleyne.** Report upon the Paleontology of the Province of Ontario, Toronto, 1874. 133 pp., 8 pls.

The author describes the following genera with from one to four species under each: Aulopora (= Hederella), Chætetes, Callopora, Fistulipora, Botryllopora, Ptilodictya, Polypora, Retepora, Cryptopora, and Fenestella.

* **Nicholson, H. Alleyne**, and **Hinde, George Jennings.** Notes on the fossils of the Clinton, Niagara, and Guelph formations of Ontario, with descriptions of new species. (Canadian Journal, new ser., XIV, 1874, pp. 137–144.)

Descriptions are given of species referred to Chætetes, Helopora, Rhinopora, Phænopora, Ptilodictya, Clathropora. The work is, in the main, repeated in the Report upon the Paleontology of the Province of Ontario, 1875.

White, Charles A. Preliminary report upon invertebrate fossils with descriptions of new species. (Wheeler's Geographical and Geological Exploration and Survey west of the 100th meridian.) Washington, 1874. 27 pp.

Contains descriptions of Glauconome nereidis sp. nov. and Polypora stragula sp. nov.

1875.

Hall, James, and **Whitfield, R. P.** Descriptions of invertebrate fossils mainly from the Silurian system. (Paleontology of Ohio. II, 1875, pp. 67–161, pls. i–ix.)

Several bryozoa from the Clinton of Ohio are described: Retepora angulata? Hall, Rhinopora frondosa n. sp., Stictopora magna n. sp., Clathropora clintonensis n. sp., Phænopora (Ptilodictya) expansa.

* **James, U. P.** Catalogue of Lower Silurian fossils at Cincinnati, Ohio, and vicinity, with descriptions of some new species of corals and polyzoa. Cincinnati, 1875. 8 pp.

The introduction to the catalogue proper contains descriptions of the following new species from the Cincinnati group: Chætetes? calycula, clavacoideus, Cincinnatiensis, ? O'Nealli, Ceramopora Nicholsoni, Ptilodictya acuminata, Alecto nexilis.

Meek, F. B. A report on some of the invertebrate fossils of the Waverly group and Coal Measures of Ohio. (Paleontology of Ohio, II, 1875, pp. 269–347, pls. x, xiv–xx.)

Contains descriptions of Fenestella delicata Meek, multiporata? var. Lodiensis Meek, Synocladia biserialis Swallow, Ptilodictya (Stictopora) serrata Meek, Ptilodictya (Stictopora) carbonaria Meek.

Meek, F. B., and **Worthen, A. H.** Paleontology of Illinois. Descriptions of invertebrates. (Geological Survey of Illinois, VI, 1875, pp. 491–532, pls. xxiii–xxxii.)

Contains description of one bryozoan, Chætetes ? carbonaria Worthen.

Miller, S. A. Some new species of fossils from the Cincinnati group and remarks upon some described forms. (Cincinnati Quarterly Journal Science, II, 1875, pp. 349–355.)

The writer gives descriptions of Calamopora fibrosa Goldfuss and Monticulipora dalei Milne-Edwards and Haime, the latter in reality Monticulipora ramosa d'Orbigny.

* **Nicholson, H. Alleyne.** Report upon the Paleontology of the Province of Ontario, Toronto, 1875. 96 pp., 4 pls.

Some thirty-two species of bryozoa are described, only part for the first time, mainly from the Trenton, Hudson River (Cincinnati), Clinton and Niagara formations, referred to the genera Chætetes, Ptilodictya, Retepora, Helopora, Rhinopora, Phænopora, Clathropora, Callopora, Ceramopora; also the new genus Heterodictya with one new species, H. gigantea.

* **Nicholson, H. Alleyne.** Descriptions of species of Hippothoa and Alecto from the Lower Silurian rocks of Ohio, with a description of Aulopora arachnoidea Hall. (Ann. Mag. Nat. Hist., ser. 4, XV, 1875, pp. 123–127, pl. xi.)

Describes from the Cincinnati group of Ohio Hippothoa inflata (Hall), Alecto auloporoides n. sp., frondosa James, confusa n. sp., Aulopora arachnoidea Hall.

* **Nicholson, H. Alleyne.** Descriptions of new species of Polyzoa from the Lower and Upper Silurian rocks of North America. (Ann. Mag. Nat. Hist., ser. 4, XV, 1875, pp. 177–184, pl. xiv.)

Describes from the Cincinnati group Ptilodictya falciformis n. sp., emacerata n. sp., flagellum n. sp., ? arctipora n. sp., fenestelliformis n. sp., Ceramopora ohioensis n. sp., and from the Niagara Fenestella nervata n. sp.

* **Nicholson, H. Alleyne.** Descriptions of new species and of a new genus of Polyzoa from the Paleozoic rocks of North America. (Geol. Mag., new ser., II, 1875, pp. 33–38, pl. ii.)

Describes Heterodictya and H. gigantea, Ptilodictya cosciniformis, Fenestella Davidsoni, Ceramopora Huronensis, Retepora Trentonensis. These are also described in the Report upon the Paleontology of Ontario, 1875.

***Nicholson, H. Alleyne.** On some of the massive forms of Chætetes from the Lower Silurian. (Geol. Mag., new ser., II, 1875, pp. 175–177.)

Describes Chætetes petropolitanus Pander and Chætetes undulatus Nicholson.

***Nicholson, H. Alleyne.** Description of the corals of the Silurian and Devonian systems. (Paleontology of Ohio, II, 1875, pp. 181–242, pls. xxi, xxii.)

This paper contains descriptions of twenty-five species of Chætetes, two of Constellaria and Aulopora arachnoidea Hall.

*__Nicholson, H. Alleyne.__ Descriptions of Polyzoa from the Silurian formation. (Paleontology of Ohio, II, 1875, pp. 257–268, pl. xxv.)

This article contains the descriptions which appeared earlier in the year in the two papers in the Annals and Magazine of Natural History.

1876.

*__Hall, James.__ The fauna of the Niagara group in central Indiana. (Twenty-eighth Ann. Rep. New York State Museum Nat. Hist., 1876 (Documentary edition), 32 plates, with explanation sheets.)

The plates only of this article made their appearance in the Documentary edition of the Twenty-eighth Museum Report. The complete edition (Museum edition) did not appear until 1879. The article is devoted to descriptions of a large number of species obtained from the now famous locality on Conns Creek near Waldron, Indiana. Twenty species of bryozoa are described (Museum edition) and figured. They are referred to the genera Chætetes, Trematopora, Callopora, Lichenalia, Sagenella, Ceramopora, Paleschara, Stictopora, Fenestella, Thamniscus.

Hall, James. Paleontology of New York. Illustrations of Devonian fossils.

This work consisted only of plates designed for the Paleontology of New York. It is questionable whether this can be considered a publication, as but a limited number of copies were sent out. Chætetes furcatus, tenuis, humilis, tabulatus, and fruticosus are the new species of bryozoa incompletely figured in this work (pls. xxxvii, xxxviii).

Nicholson, H. Alleyne. On the mode of growth and increase amongst the corals of the Paleozoic period. (Trans. Royal Soc. Edinburgh, XXVII, pp. 237–250, 1876.)

A general discussion involving some monticuliporoid forms.

*__Nicholson, H. Alleyne.__ Notes on the Paleozoic corals of the State of Ohio. (Ann. Mag. Nat. Hist., ser. 4, XVIII, 1876, pp. 85–94, pl. v.)

This paper marks the opening of a new epoch in the study of Paleozoic bryozoa. For the first time, so far as we are aware, the appearances presented by thin sections viewed under the microscope form the subject of study and illustration. The species whose internal structure is described, and in most cases figured, are Chætetes rhombicus, sigillarioides, nodulosus, rugosus, ramosus, petropolitanus, discoideus, Newberryi, Jamesi, gracilis, Fletcheri, tuberculatus, clathratulus, frondosus, Constellaria antheloidea, Dekayia attrita.

White, C. A. Descriptions of new species of fossils from the Paleozoic rocks of Iowa. (Proc. Acad. Nat. Sci. Philadelphia, 1876, pp. 27–34.)

Describes Chætetes muscatinensis n. sp. and Monticulipora monticula n. sp.

1877.

Miller, S. A. American Paleozoic fossils; a catalogue of the genera and species. Cincinnati, 1877. xv, 246 pp. Supplement 1883, pp. 247–334. Bryozoa, pp. 95–102, 289–294.

* **Nicholson, H. Alleyne**, and **Etheridge, Robert, Jun.** On Ascodictyon, a new provisional and anomalous genus of Paleozoic fossils. (Ann. Mag. Nat. Hist., ser. 4, XIX, 1877, pp. 463–8, pl. xix.)

The authors characterize very fully the new genus Ascodictyon and describe three species, two from the Hamilton of Ontario and one from the Lower Carboniferous of Scotland, and then discuss at some length the systematic position of the genus.

White, C. A. Report upon the invertebrate fossils collected in portions of Nevada, Utah, Colorado, New Mexico, and Arizona by parties of the expeditions of 1871–1874. (Wheeler's Exploration and Survey west of the 100th Meridian, IV, 1877.) Bryozoa, pp. 99–109, pls. vi, vii.

Describes Rhombopora lepidodendroides Meek, Glauconome nereidis White, Synocladia biserialis Swallow, Polypora stragula White, Monticulipora Dalii Milne-Edwards and Haime (p. 67).

* **James, U. P.** The Paleontologist, Cincinnati, 1878–1883. No. 1, July 2, 1878, pp. 1–8; No. 2, Sept. 14, 1878, pp. 9–16; No. 3, Jan. 15, 1879, pp. 17–24; No. 4, July 10, 1879, pp. 25–32; No. 5, June 10, 1881, pp. 33–44; No. 6, Sept. 12, 1882, pp. 45–56; No. 7, Apr. 16,1883, pp. 57–59, pls. i, ii.

In this small brochure, appearing at irregular intervals, a large number of new species are described, mainly from the Cincinnati group. Some writers have considered that this work should be disregarded on account of its obscure mode of publication. Inasmuch, however, as it has received some recognition, we have deemed it best to recognize the work and regard as valid such of the species as can be identified from the descriptions. The two plates included in the last number are of no value for identifying the species.

Mickleborough, John, and **Wetherby, A. G.** A classified list of Lower Silurian fossils of the Cincinnati group. (Jour. Cincinnati Soc. Nat. Hist, I, 1878, pp. 61–86.)

Miller, S. A. Description of a new genus and eleven new species of fossils. (Jour. Cincinnati Soc. Nat Hist., I, 1878, pp. 100–108, pl. iii.)

Describes Ptilodictya magnifica n. sp.

Miller, S. A., and **Dyer, C. B.** Contributions to Paleontology. (Jour. Cincinnati Soc. Nat. Hist., I, 1878, pp. 24–39, pls. i, ii.)

The authors describe Monticulipora calceolus n. sp.

* **Miller, S. A.**, and **Dyer, C. B.** Contributions to Paleontology, No. 2. Cincinnati, 1878. 11 pp., 2 pls. (Published by the authors.)

The authors describe the new bryozoan genus Bythopora, with the type species B. fruticosa n. sp.; also Ptilodictya internodia n. sp., and Intricaria clathrata n. sp.

Ulrich, E. O. Descriptions of some new species of fossils from the Cincinnati group. (Jour. Cincinnati Soc. Nat. Hist., I, 1878, pp. 92–100, pl. iv.)

Describes Callopora cincinnatiensis n. sp., Chætetes venustus n. sp., Ptilodictya perelegans n. sp.

White, C. A. Descriptions of new species of invertebrate fossils from the Carboniferous and Upper Silurian rocks of Illinois and Indiana. (Proc. Acad. Nat. Sci. Philadelphia, 1878, pp. 29-37.)

Describes Ptilodictya triangulata n. sp.

* **Whitfield, R. P.** Preliminary descriptions of new species of fossils from the lower geological formations of Wisconsin. (Annual report of the Geological Survey of Wisconsin for 1877, 1878, pp. 50–89.)

The author describes the following new species, which are afterwards described and figured in Geological Survey Wisconsin, IV, 1882: Trematopora annulifer, granulata, Fenestella granulosa, Fistulipora solidissima, lens, Chætetes fusiformis, Monticulipora rectangularis, punctata, multituberculata, Alveolites irregularis.

1879.

* **Hall, James.** Descriptions of new species of fossils from the Niagara formation at Waldron, Indiana. (Trans. Albany Institute, X, 1883, pp. 57–76.) Extract distributed 1879.

In this paper the author describes fifteen additional new species of bryozoa from the noted Waldron locality. These species have not been illustrated. A few will probably prove synonyms, while some others can not be recognized from the descriptions.

* **Hall, James.** The fauna of the Niagara group in central Indiana. (Twenty-eighth Ann. Rep. New York State Museum Nat. Hist., Museum edition, 1879, pp. 99–203, 32 pls.) Bryozoa, pp. 110–126, pls. v–xii.

* **Nicholson, H. Alleyne.** On the structure and affinities of the "Tabulate Corals" of the Paleozoic period, with critical descriptions of illustrative species. Edinburgh, 1879. 342 pp., 15 pls. Bryozoa, pp. 253–327, pls. xii–xv.

Among the Tabulate Corals the author includes the monticuliporoids and their allies. The following genera of bryozoa are characterized and critically discussed: Monticulipora, Heterotrypa, Dekayia, Constellaria, Fistulipora, Diplotrypa, Monotrypa, Prasopora. One or more typical species of each are described and their internal structure elucidated.

* **Ulrich, E. O.** Descriptions of new genera and species of fossils from the Lower Silurian about Cincinnati. (Jour. Cincinnati Soc. Nat. Hist., II, 1879, pp. 9–30, pl. vii.)

Two new genera, Rhopalonaria and Crateripora, and five new species are described, Rhopalonaria venosa, Chætetes compressus, Fistulipora flabellata, Crateripora lineata and var. expansa, Crateripora erecta.

* **Ulrich, E. O.** Description of a new genus and some new species of Bryozoans from the Cincinnati group. (Jour. Cincinnati Soc. Nat. Hist., II, 1879, pp. 119–131, pl. xii.)

Describes the new genus Atactopora with seven new species, A. hirsuta, maculata, multigranosa, mundula, tenella, subramosa, septosa; also Stellipora limitaris and Chætetes granuliferus, irregularis, subglobosus, elegans.

Walcott, C. D. Fossils of the Utica slate. (Trans. Albany Institute, X, 1883, pp. 18–38.) Extract distributed 1879.

Describes Sagenella ambigua n. sp. from the Utica slate.

White, C. A. Paleontological Papers No. 11: Remarks upon certain Carboniferous fossils from Colorado, Arizona, Idaho, Utah, Wyoming, and certain Cretaceous corals from Colorado, together with descriptions of new forms. (Bulletin U. S. Geological Survey, V, 1879, pp. 209–221.)

This paper contains a description of Ptilodictya triangulata White.

1880.

***Hall, James.** Corals and Bryozoans of the Lower Helderberg group. (Thirty-second Ann. Rep. New York State Museum Nat Hist., Albany, 1879, pp. 141–176, pls. vii–xxii.)

This work is a continuation of the work on the bryozoan fauna of the Lower Helderberg group published in 1874. Seventy-four species are described and figured, most of them new, referred to the genera Chætetes, Trematopora, Callopora, Lichenalia, Ceramopora, Paleschara, Stictopora, Escharopora, Fenestella, Ichthyorachis, and Thamniscus.

Miller, S. A. Description of four new species of Silurian fossils. (Jour. Cincinnati Soc. Nat. Hist., III, 1880, pp. 140–144, pl. iv.)

Describes Bythopora nashvillensis n. sp.

Ulrich, E. O. Catalogue of fossils occurring in the Cincinnati group of Ohio, Indiana, and Kentucky. Cincinnati, 1880. iv, 31 pp.

Whitfield, R. P. Descriptions of new species of fossils from the Paleozoic formations of Wisconsin. (Ann. Rep. Wisconsin Geological Survey for 1879, 1880, pp. 45–71.)

Contains description of one new species of bryozoa, Fistulipora rugosa.

1881.

Claypole, E. W. On the occurrence of an archimediform Fenestellid in the Upper Silurian rocks of Ohio. (Proceedings of the American Association for the Advancement of Science, XXX, 1881, p. 191.)

The author notes the occurrence of this remarkable form for which he proposes the new genus and species Helicopora latispiralis.

***Hall, James.** Bryozoans of the Upper Helderberg and Hamilton groups. (Trans. Albany Institute, X, 1883, pp. 145–197.) Distributed in the form of extracts separately paged in 1881.

This paper contains brief, usually inadequate descriptions, without illustrations, of 189 new species from the Upper Helderberg of New York and Ontario, and from the Falls of the Ohio, which deposit Hall considered of Upper Helderberg age, and from the Hamilton group of New York, Ontario, and elsewhere. Most of these species were later more fully described and figured in the Paleontology of New York, VI, 1887. The new genera and subgenera proposed are Phractopora, Thallostigma, Intrapora, Thamnopora, Prismopora, Scalaripora, Cystopora, Clonopora, Pteropora, Semiopora, Acrogenia, Hederella, Ptilionella, and Hernodia.

Miller, S. A. Subcarboniferous fossils from the Lake Valley mining district of New Mexico, with descriptions of new species. (Jour. Cincinnati Soc. Nat. Hist., IV, 1881, pp. 306–315, pl. vii.)

Describes Trematopora americana n. sp.

* **Nicholson, H. Alleyne.** On the structure and affinities of the genus Monticulipora and its subgenera, with critical descriptions of illustrative species. Edinburgh, 1881. 240 pp., 6 pls. A review of this work appeared in the Ann. Mag. Nat. Hist., ser. 5, VIII, 1881, pp. 61–63.

This memoir is an expansion of the latter part of the author's work "On the Structure and Affinities of the Paleozoic Tabulate Corals." After chapters on the General History of the Genus Monticulipora, Its General and Comparative Structure, Development, Affinities and Zoological Position, Relations to Other Genera and Subdivisions, full and careful descriptions are given of the genera and subgenera (as the author calls some of them) Fistulipora, Constellaria, Dekayia, Monticulipora, Diplotrypa, Monotrypa, Prasopora, Peronopora, Heterotrypa, with illustrative species fully and accurately described and amply figured. This memoir marks a very great advance over any previous work.

Quenstedt, Friedrich Augustus. Die Roehren- und Sternkorallen. (Petrefactenkunde Deutschlands, VI.) Leipzig, 1881. Plates in Atlas.

In this work, a general review of corals and some bryozoa, are references with more or less extended descriptive remarks to a number of American species, accompanied by very good figures in the atlas. Chætetes frondosus var. limatus, Chætetes leviramus, and Fenestella incongruens are new names proposed for American forms. The first and third are inadequately described; the second is a synonym for Bythopora gracilis (Nicholson).

1882.

Buel, Ira M. The corals of Delafield. (Transactions of the Wisconsin Academy of Science, V, 1882, pp. 185–193.)

The paper is a general discussion more particularly of the monticuliporoid forms occurring at this noted locality and described in the Geology of Wisconsin, IV.

* **Hall, James.** Descriptions of species of fossils found in the Niagara group at Waldron, Indiana. (Indiana, Department of Geology and Nat. Hist., Eleventh Ann. Rep., 1882, pp. 217–345, pls. iv–xi.)

This is a reproduction for the benefit of Indiana readers of Hall's papers on the Waldron fossils, which appeared in the Twenty-eighth Ann. Rep. New York State Museum, 1876–1879, and the Trans. Albany Institute, X, Extract, 1879.

* **Miller, S. A.** Notice of a work by Prof. Nicholson on the Genus Monticulipora. (Jour. Cincinnati Soc. Nat. Hist., V, 1882, pp. 25–33.)

An iconoclastic review of Prof. Nicholson's "Genus Monticulipora."

Miller, S. A. Description of two new genera and eight new species of fossils from the Hudson River group, with remarks upon others. (Jour. Cincinnati Soc. Nat. Hist., V, 1882, pp. 34–44, pls. i, ii.)

Describes Stomatopora proutana n. sp.

* **Ulrich, E. O.** American Paleozoic bryozoa. (Jour. Cincinnati Soc. Nat. Hist., V, 1882, pp. 121–175, pls. vi–viii, pp. 232–257, pls. x, xi; VI, 1883, pp. 82–92, pl. i, pp. 148–168, pls. vi, vii, pp. 245–279, pls. xii–xiv; VII, 1884, pp. 24–51, pls. i–iii.)

This is the first attempt at a comprehensive account of the bryozoa found in American Paleozoic strata. After a general discussion regarding the affinities and systematic position of some groups of bryozoa (Trepostomata), whose systematic position had been a bone of contention for many years, the author gives brief diagnoses of most of the Paleozoic genera hitherto known and proposes the new genera Eridopora, Leioclema, Scenellopora, Mitoclema, Arthronema, Graptodictya, Arthropora, Dicranopora, Stictoporella, Rhinidictya, Cystodictya, Pachydictya, Phyllodictya, Amplexopora, Batostomella, Calloporella, Aspidopora, Dekayella, Petigopora, Discotrypa, Spatiopora, Didymopora, Ceramoporella, Cheiloporella, Crepipora. Then are described a large number of new species (81). The descriptions are full and accurate; comparisons with related species and often critical notes are given. A new suborder, the Trepostomata, is founded.

White, C. A. Van Cleve's fossil corals. (Indiana, Department of Geology and Nat. Hist., Eleventh Ann. Rep., 1882, pp. 376–401, pls. xliv–lv.)

Contains descriptions of Constellaria antheloidea Hall, Monticulipora frondosa d'Orbigny, and Clathropora frondosa Hall.

* **Whitfield, R. P.** Paleontology. (Geology of Wisconsin, IV, 1882, pp. 163–349, pls. i–xxvii.)

Contains descriptions of the following species: Chætetes fusiformis, Monticulipora rectangularis, punctata, multituberculata, ? Ortoni, Alveolites irregularis, Fenestella granulosa, Stictopora fragilis, Trematopora granulata, annulifera, Fistulipora solidissima, rugosa, lens, Constellaria polystomella.

Whitfield, R. P. Descriptions of new species of fossils from Ohio. (Annals New York Acad. Sci., II, 1882, pp. 193–244.)

Describes Synocladia rectistyla.

1883.

* **Claypole, E. W.** On Helicopora, a new spiral genus (with three species) of North American Fenestellids. (Quar. Jour. Geol. Soc. London, XXXIX, 1883, pp. 30–38, pl. iv.)

Gives a description of Helicopora n. gen. with three new species—H. latispiralis, Ulrichii, and archimediformis, and a brief discussion of the family Fenestellidæ, to which the new genus is referred by the author.

* **Foord, A. H.** Contributions to the micro-paleontology of the Cambro-Silurian rocks of Canada. (Geol. Nat. Hist. Survey Canada, Ottawa, 1883. 26 pp., 7 pls.)

The writer gives a good account of monticuliporoids from Ordovician strata of Canada. The species were studied according to modern methods and the details of internal structure are well described and figured. The new species are Monticulipora Westoni, Billingsi, Homotrypa similis, Prasopora oculata, affinis, Diplotrypa regularis, Amplexopora superba, Canadensis, Batostoma Ottawaense, Spatiopora areolata.

Hall, James. Van Cleve's fossil corals. (Indiana, Department Geology and Nat. Hist., Twelfth Ann. Rep., 1883, pp. 239–270, pls. i–xiv.)

In this volume are reproduced a number of plates of western fossils, drawn and engraved by John W. Van Cleve previous to 1853. The publication of the work was prevented by the author's death. The bryozoa, derived from the Cincinnati and Clinton groups, are identified by Professor Hall. The new species are Ptilodictya bipunctata, Stictopora compressa, bifurcata, and Van Clevii.

* **Hall, James.** Discussion upon the manner of growth, variation of form, and characters of the genus Fenestella, and its relations to Hemitrypa, Polypora, Retepora, Cryptopora, etc. (Report of the State Geologist of New York for the year 1882, Albany, 1883, pp. 5–16, 36 figs.)

Contains a discussion of Fenestella and related genera, and 25 plates prepared for, and later appearing in, Paleontology of New York, VI, 1887.

* **Hall, James.** Fossil corals and bryozoans of the Upper Helderberg group. 25 plates with explanation sheets. (Report of the State Geologist of New York for the year 1882, Albany, 1883, pls. vii–xxxiii.)

James, U. P. Descriptions of fossils from the Cincinnati group. (Jour. Cincinnati Soc. Nat. Hist., VI, 1883, pp. 235–236, pl. x.)

Contains description of Monticulipora dychei n. sp.

White, C. A. Contributions to invertebrate paleontology, No. 6: certain Carboniferous fossils from the Western States and Territories. (Hayden's Twelfth Ann. Rep. U. S. Geogr. Geol. Surv. of the Territories, Part I, 1883, pp. 119–141, pls. xxxiii–xxxvi.)

Contains description and figures of Ptilodictya triangulata.

1884.

* **Foord, Arthur H.** On three new species of Monticuliporoid Corals. (Ann. Mag. Nat. Hist., ser. 5, XIII, 1884, pp. 338–342, pl. xii.)

Describes Monotrypa macropora and Amplexopora microtoma from the Wenlock of England, and Dekayella robusta from Cincinnati, Ohio.

* **Hall, James.** Descriptions of the Bryozoans of the Hamilton group. (Report of the State Geologist of New York for the year 1883, Albany, 1884, pp. 5–61.)

Contains descriptions of 74 species of bryozoa, all of which afterwards reappeared in Paleontology of New York, VI, 1887.

* **Hall, James.** Bryozoa (Fenestellidæ) of the Hamilton group. (Thirty-sixth Ann. Rep. New York State Museum Nat. Hist., Albany, 1883. pp. 57–72.)

Contains descriptions of 20 species of Fenestella, which afterwards reappeared in Paleontology of New York, VI, 1887.

* **James, U. P.** Descriptions of three species of fossils. (Jour. Cincinnati Soc. Nat. Hist., VII, 1884, pp. 21–24.)

Describes Fistulipora oweni sp. nov. and Ceramopora ? beani James, both species illustrated with woodcuts.

* **James, U. P.** Descriptions of four new species of fossils from the Cincinnati group. (Jour. Cincinnati Soc. Nat. Hist., VII, 1884, pp. 137–139, pl. vii.)

Describes Monticulipora ohioensis n. sp. and falesi n. sp.

Ringueberg, Eugene N. S. New fossils from the four groups of the Niagara period of western New York. (Proc. Acad. Nat. Sci. Philadelphia, 1884, pp. 144–150, pls. ii, iii.)

Describes Stictopora obliqua n. sp. and graminifolia n. sp. Descriptions and figures are both worthless.

Spencer, J. W. Niagara fossils. Part III. Fifteen new species of Niagara fossils. (Trans. St. Louis Acad. Sci., IV, 1884, pp. 602–610, pls. vii–ix.) Also in (Bulletin of the Museum of the University of the State of Missouri, I, No. 1, 1884, pp. 52–61, pls. vii–ix).

Describes Rhinopora venosa n. sp., Clathropora? gracilis n. sp., Fenestella bicornis n. sp., Polypora (Fenestella?) Albionensis n. sp. The fossils themselves are very poorly preserved, the descriptions given are inadequate, and the illustrations are almost worthless. It is doubtful if any can be recognized. The first two are almost certainly synonyms for other species.

1885.

Davis, William J. Kentucky fossil Corals. Part II, 1885. (Kentucky Geological Survey, John R. Proctor, director.) 139 pls., no text.

Of this work only the plates have appeared. In the explanation sheets of plates 51, 73, 78, and 80 occurs a new generic term, Nicholsonia, with three species—canadensis (= Hederella canadensis (Nicholson)), adnata, and angulata. The last is not a bryozoan nor even a fossil, while the second, though too poorly figured to be determined with certainty, is probably the same as Hederalla filiformis (Billings).

* **Hall, James.** On the mode of growth and relations of the Fenestellidæ. (Report of the State Geologist of New York for the year 1884, Albany, 1885, pp. 35–46, pls. i, ii.)

The author defines various genera referred to the Fenestellidæ and gives two plates to illustrate generic structure. The work was in large part later incorporated in the Paleontology of New York, VI, 1887. New genera, mostly called subgenera by the author, are Fenestrellina [d'Orbigny?], Fenestropora, Ptyloporina, Ptyloporella, Unitrypa, Isotrypa.

* **Nicholson, H. Alleyne, and Foord, Arthur H.** On the genus Fistulipora M'Coy, with descriptions of several species. (Ann. Mag. Nat. Hist., ser. 5, XVI, 1885, pp. 496–517, pls. xv–xviii.)

An admirable study of the genus Fistulipora and a number of its species. The structure of a number of previously recorded species is well worked out and the following new species fully described: Fistulipora muscosa (Lower Carboniferous—Scotland), nummilina (Wenlock—England), dobunica (Wenlock—England), cornavica (Wenlock—England). American species described are F. utriculus Rominger, eriensis Rominger.

1886.

* **Hall, James.** Bryozoa of the Upper Helderberg group. Plates and explanations. (Fifth Ann. Rep. State Geologist, New York, for the year 1885, Albany, 1886, 14 pls.) Twelve plates bound in quarto form were sent out in 1886 under the above title in brochure form.

These plates appeared subsequently in the Paleontology of New York, VI, 1887.

Ringueberg, Eugene N. S. New genera and species of fossils from the Niagara shales. (Bulletin Buffalo Soc. Nat. Sci., V, 1886, pp. 5–22, pls. i, ii.)

Describes the following new species: Ceramopora orbiculata, Rhinopora curvata, Stomatopora recta, parva, Chætetes expansus. The illustrations are very poor.

***Ulrich, E. O.** Descriptions of new Silurian and Devonian fossils. (Contributions to American Paleontology, Volume I, No. 1, Cincinnati, 1886, pp. 3–35, pls. i–iii.) Bryozoa, pp. 3–25, pls. i, ii.

This publication, designed as a serial, ended with its first number. The author discusses critically the families Fenestellidæ and Acanthocladiidæ and diagnoses their genera. Two new genera are defined, Buskopora and Lichenotrypa, and sixteen new species from the Falls of the Ohio, referred to the genera Fenestella, Semicoscinium, Unitrypa, Polypora, Fistulipora, Eridopora, Buskopora, Lichenotrypa, and Discotrypa.

***Ulrich, E. O.** Report on the Lower Silurian Bryozoa, with preliminary descriptions of some of the new species. (Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, 1886, pp. 57–103.)

One new genus is established, Homotrypella, and 37 new species described from the Trenton strata of Minnesota, which are later fully described and figured in Geology of Minnesota, III.

1887.

***Foerste, August F.** Flint Ridge Bryozoa. (Bulletin of the Scientific Laboratories of the Denison University, II, 1887, pp. 71–88, pl. vii.)

This paper, following the lines of work laid down by Mr. Ulrich, deals fairly well with the Coal Measures fauna of Flint Ridge in central Ohio. One new genus, Chainodictyon, is proposed, and the following new species are described: Rhombopora multipora, Glauconome whitii, Chainodictyon laxum, Fenestella limbatus and var. remotus, Stenopora Ohioensis.

***Foerste, August F.** The Clinton group of Ohio, Part III. (Bulletin of the Scientific Laboratories of the Denison University, II, 1887, pp. 149–176, pls. xv–xvii.) [The plates were, however, omitted from this volume, but pls. xv and xvi appear in the succeeding volume, III, 1888.]

This paper contains the best account which has yet appeared of the bryozoan fauna of the Clinton group in Ohio. The new species are Hemitrypa ulrichi, Pachydictya emaciata, bifurcata-instabilis, turgida, obesa, Prasopora parmula, Monotrypella confluens, Callopora magnopora, Ohioensis.

***Foerste, August F.** Recent methods in the study of the Bryozoa. (Science, X, 1887, pp. 225–226.) Also, Sections of fossils. (Science, XI, 1888, p. 22.)

These two articles, written in reply to earlier communications in Science by Joseph F. James decrying the newer methods of investigating Paleozoic bryozoa, set forth admirably the spirit and method of modern studies on the Paleozoic bryozoa.

***Hall, James.** Descriptions of Fenestellidæ of the Hamilton group of New York. (Sixth Ann. Rep. State Geologist New York for the year 1886, Albany, 1887, pp. 43–70, pls. i–vii.)

Contains descriptions of twenty-two species of Fenestella, of which four are called n. sp., from the Hamilton group, illustrated by thirteen plates, of which seven appear in this report and the remainder in the Forty-first Ann. Rep. New York State Museum Nat. Hist., 1888.

* **Hall, James,** and **Simpson, George B.** Paleontology of New York, VI, Corals and Bryozoa: Text and plates containing descriptions and figures of species from the Lower Helderberg, Upper Helderberg and Hamilton groups. Albany, 1887. xxvi, 298 pp., 67 pls.

It is to be regretted that this, the most important work of the New York Survey upon the bryozoa, should prove on critical examination to be of so little value either to the systematist or to the practical paleontologist. As Hall acknowledges that the work was practically done by the draftsman, Mr. George B. Simpson, the merits and demerits of the volume may be properly charged to the latter. The drawings, however beautiful, are diagrammatic to an extreme and are of little assistance to the student. The descriptions are in many cases vague, and often differ so decidedly from previous descriptions of the same form that no reliance can be placed upon them. The great number of forms distinguished is confusing. Synonyms, we believe, abound. (See note under Lioclema minutum in the Catalogue of Genera and Species. The bryozoa of New York still require study.

Brief generic diagnoses of the genera and subgenera used, 60 in number, are given in the preliminary pages, prepared by Mr. Charles E. Beecher. Descriptions follow of 83 species and 3 named varieties from the Lower Helderberg, 153 species and 6 named varieties from the Upper Helderberg (a large number of these are from the Falls of the Ohio and are now considered by Ulrich of Hamilton age), and 113 species from the Hamilton. A few species (one from the Niagara) have crept into the plates without description.

* **James, U. P.,** and **James, Joseph F.** On the Monticuliporoid corals of the Cincinnati group, with a critical revision of the species. (Jour. Cincinnati Soc. Nat. Hist., X, 1887, pp. 118–141; X, 1888, pp. 158–184; XI, 1888, pp. 15–47.

The title is sufficiently explanatory of these papers, which are iconoclastic in spirit and decry modern methods of research. A few species described by Mr. U. P. James are wretchedly illustrated.

Rominger, Carl. Description of a new form of Bryozoa. (Proc. Acad. Nat. Sci. Philadelphia, 1887, p. 11, pl. i.)

Gives a description of the exterior appearance of three specimens of a new bryozoan discovered in Corniferous drift bowlders of Michigan for which the new generic and specific name Patellipora stellata is proposed.

1888.

Foerste, August F. Notes on Paleozoic fossils. (Bulletin Scientific Laboratories Denison University, III, 1888, pp. 117–136, pl. xiii.)

This paper contains an additional note on Chainodictyon laxum.

* **Hall, James.** Description of new species of Fenestellidæ of the Lower Helderberg, with explanations of plates illustrating species of the Hamilton group, described in the report of the State Geologist for 1886. (Report of State Geologist of New York for the year 1887, pp. [393–4], pls. viii–xv.) This report is bound with the Forty-first Ann. Rep. New York State Museum Nat. Hist., 1888.

Contains descriptions of Fenestella (Tectulipora nov. subgen.) loculata n. sp. and Fenestella frequens, and eight plates, the first six illustrating species of Fenestella described the preceding year in the Sixth Ann. Rep. State Geologist of New York.

The last two illustrate species of Fenestella, Fistulipora, and Lichenalia described but not figured in Paleontology of New York, VI, 1887.

Herrick, C. L. Geology of Licking County. (Bulletin Denison University, IV, 1888, pp. 11–60, pl. x.)

On the plate the author figures Fenestella albida? and Pinnatopora intermdia Ulrich.

James, Joseph F. Monticulipora, a coral and not a polyzoon. (American Geologist, I, 1888, pp. 386–392.)

Keyes, C. R. On the fauna of the Lower Coal Measures of central Iowa. (Proc. Acad. Nat. Sci. Philadelphia, 1888, pp. 222–246, pl. xii.)

Gives descriptions of Rhombopora lepidodendroides Meek, and Synocladia biserialis Swallow.

* **Ulrich, E. O.** On Sceptropora, a new genus of Bryozoa, with remarks on Helopora, Hall, and other genera of that type. (American Geologist, I, 1888, pp. 228–234.)

In this paper the genera Sceptropora (nov. gen.), Helopora Hall, Arthroclema Billings, and Arthrostylus (proposed for Arthronema, found to be preoccupied) are described and the new species Sceptropora facula and Helopora lindstromi from Gotland.

* **Ulrich, E. O.** A list of the Bryozoa of the Waverly group in Ohio; with descriptions of new species. (Bulletin Denison University, IV, 1888, pp. 62–96, pls. xiii, xiv.)

The paper includes the descriptions of five new and three other species of Fenestella, one new species of Polypora, five new species of Pinnatopora, one new species of Tæniodictya, three of Cystodictya, seven of Streblotrypa, one of Rhombopora.

1889.

Foerste, August F. Notes on Clinton group fossils, with special reference to collections from Indiana, Tennessee, and Georgia. (Proc. Boston Soc. Nat. Hist., XXIV, 1889, pp. 263–355, pls. v–ix.)

The author gives notes on additional species from the Clinton group. Three new species and one new variety of bryozoa are described: Ptilodictya expansa-emarcescens, farctus, famelicus, rudis.

* **Miller, S. A.** North American Geology and Paleontology. Cincinnati, 1889. 664 pp., 1194 figs. in text. Bryozoa, pp. 289–330, figs. 448–531. First Appendix, 1892, pp. 665–718, figs. 1195–1265. Bryozoa, pp. 684–685. Second Appendix, 1897, pp. 719–793. Bryozoa, pp. 755–758.

This ambitious work, a catalogue of the genera and species of North American Paleozoic fossils, the genera diagnosed, must be used with caution. Many of the bryozoa are found classed among the Cœlenterata, and the Bryozoa section is badly mixed.

Nettleroth, Henry. Kentucky fossil shells, 1889. (Kentucky Geological Survey, John R. Procter, Director.) 245 pp., 36 pls.

Descriptions are included in this work of Ptilodictya and Ptilodictya hilli James.

* **Ulrich, E. O.** Contributions to the micro-paleontology of the Cambro-Silurian rocks of Canada. Part II. Geol. Nat. Hist. Sur. Canada, Montreal, 1889, pp. 27–57, pls. viii, ix.)

The paper contains an account with descriptions of the bryozoa collected from Stony Mountain, Manitoba. One new genus is created, Goniotrypa, and a number of new species.

1890.

* **Nickles, J. M.** Studies on Monticulipora. (American Geologist, VI, 1890, pp. 396–399.)

A rejoinder to Rominger's Studies on Monticulipora, American Geologist, VI, 1890, pp. 102–121.

* **Rominger, Carl.** Studies on Monticulipora. (American Geologist, VI, 1890, pp. 102–121.)

A paper general and critical in nature, and taking strong ground against modern methods of determination.

* **Ulrich, E. O.** New Silurian Bryozoa. (Jour. Cincinnati Soc. Nat. Hist., XII, 1890, pp. 173–198, 22 figs. in text.)

Describes the new genera, Vinella and Diastoporina, and new species bolonging to the genera Vinella, Stomatopora, Mitoclema, Diastoporina, Phylloporina, Rhinidictya, Pachydictya, Stictoporella, Arthrostylus, Helopora, Arthroclema, Nematopora. These afterwards appeared in the Geology of Minnesota, III, 1893.

* **Ulrich, E. O.** Paleozoic Bryozoa. (Geological Survey of Illinois, VIII, 1890, pp. 285–688, pls. xxix–lxxviii.)

The publication of this most important memoir marks an epoch in the study of the Paleozoic Bryozoa. Based upon an elaborate series of investigations embracing a very large number of Paleozoic species and a vast amount of material, a classification is proposed laid down along lines which are not likely soon to be disturbed. The "Introduction and terminology" is followed by chapters on the "General and comparative structure of Paleozoic Bryozoa" and the "Classification and interrelations of families and genera." The definitions of suborders, families, and genera are carefully drawn, some 310 species, many of them new, described and figured. This work is indispensable to the student of Paleozoic Bryozoa.

1891.

* **Hall, James.** Continuation of descriptions of Bryozoa not printed in Volume VI, Paleontology of New York, for the Report of the State Geologist, 1890. (Tenth Annual Report of the State Geologist of New York for the Year 1890, Albany, 1891, pp. 37–57. Also in Forty-fourth Annual Report of the New York State Museum, 1891, pp. 67–87.)

Contains descriptions of Hamilton group bryozoa, for which there was not room in Paleontology of New York, VI. There are described: Paleschara, five species; Stictopora, nineteen species; Semiopora, one species; Prismopora, two species; Ptilodictya, two species; Thamniscus, one species; Hederella, one species; Ptilopora, two species. There are no illustrations.

Whiteaves, J. F. Contributions to Canadian Paleontology, Volume I, Part III. The fossils of the Devonian rocks of the Mackenzie River Basin. (Geol. Nat. Hist. Sur. Canada, 1891, pp. 197–253, pls. xxvii–xxxii.)

Contains the following new species: Proboscina laxa, Stomatopora moniliformis, Monotrypella Unjiga.

1892.

Ami, Henry M. Notes and descriptions of some new or hitherto unrecorded species of fossils from the Cambro-Silurian (Ordovician) Rocks of the Province of Quebec. (Canadian Record of Science, V, 1892, pp. 96–103.)

Contains descriptions of Dicranopora parva, n. sp.; Prasopora lycoperdon Vanuxem, var. Selwyni, n. var.; Diplotrypa Quebecensis, n. sp.; Monotrypa incerta, n. sp. It is doubtful whether any of these, except Diplotrypa Quebecensis, which has since been redescribed and figured by Ulrich, will gain recognition.

Rominger, Carl. On the occurrence of typical Chætetes in the Devonian strata at the Falls of the Ohio, and likewise in the analogous beds of the Eifel in Germany. (American Geologist, X, 1892, pp. 56–63, pl. iii.)

A general discussion with figures and some description of Monotrypa tenuis Hall, Chætetes ponderosus Rominger, and two species not bryozoans.

1893.

Cole, Grenville, A. J. On Hemitrypa hibernica McCoy. (Scientific Proceedings of the Royal Dublin Society, (n. s.) VIII, 1893, pp. 132–144, pl. viii.)

The author gives an admirable account of the history of the genus Hemitrypa, whose structure he apprehends correctly. The article contains numerous references to American work and American species.

***James, Joseph F.** Manual of the paleontology of the Cincinnati group. (Jour. Cincinnati Soc. Nat. Hist. 1893–1896. Part IV in Vol. XV, 1893, pp. 144–159; Part V in Vol. XVI, 1894, pp. 178–208; [Part VI] in Vol. XVIII, 1895, pp. 67–88; [Part VII] in Vol. XVIII, 1896, pp. 115–140.)

Descriptions are given of the species of monticuliporoids of the Cincinnati group which the author considered valid, and those which he considered synonyms are referred to the species of which he considered them synonyms. The work, which is rather iconoclastic, was left unfinished by the death of the author.

***Ulrich, E. O.** On Lower Silurian Bryozoa of Minnesota (Geology of Minnesota, III, Part I, Minneapolis, 1893, pp. 96–332, pls. i–xxviii.)

Next to the memoir in the Geological Survey of Illinois, VIII, 1890, this is the most important work on the Paleozoic Bryozoa, even though it deals mainly with the Trenton of Minnesota. The classification given in the Illinois work is improved in some particulars. The descriptive part contains 157 species, many of them new, referred to 50 genera.

1894.

* **Keyes, Charles Rollin.** Missouri Geological Survey, V, Paleontology of Missouri, Part II, Jefferson City, 1894. 226 pp., 24 pls. Bryozoa, pp. 13–37, pls. xxxiii, xxxiv.

Catalogues with synonymy and localities the species of bryozoa found in the State of Missouri or near its boundaries. Some species are described and figured, the descriptions and figures being mostly reproductions from the Geological Survey of Illinois, VIII, 1890.

1895.

Ami, H. M. Notes on Canadian fossil bryozoa. (Canadian Record of Science, VI, 1895, pp. 222–229.)

Notes the Canadian forms described by E. O. Ulrich in the Geology of Minnesota, III.

Foerste, August F. Fossils of the Clinton group in Ohio and Indiana. (Geol. Sur. Ohio, VII, 1895, pp. 516–601, pls. xxviii–xxxviiA.)

In this work there is reproduced with more or less fullness, for the benefit of Ohio readers, what Mr. Foerste had published regarding the Clinton group in Ohio in previous papers.

Herrick, C. L. Observations upon the so-called Waverly group of Ohio. (Geol. Sur. Ohio, VII, 1895, pp. 495–515, pl. xix, 9.)

Rhombopora ohioensis Ulrich is figured on pl. xix.

* **Simpson, George B.** A discussion of the different genera of Fenestellidæ. (Thirteenth Ann. Rep. State Geologist New York for the year 1893, Albany, 1894 [distributed 1895], pp. 687–727; also in Forty-seventh Ann. Rep. New York State Museum Nat. Hist., 1894, pp. 881–921.)

A general discussion of the Fenestellidæ and inter-relations of the genera. The author reproduces original figures by Prout and King of species of Semicoscinium, Fenestralia, Phyllopora, Synocladia. The following new generic names appear: Flabelliporina, Polyporella, Flabelliporella, Reteporella, Pinnaporina, Pinnaporella, Cycloporina, Tectuliporella, Lyroporina, Lyroporella.

Whiteaves, J. F. Systematic list, with references, of the fossils of the Hudson River or Cincinnati formation at Stony Mountain, Manitoba. (Paleozoic Fossils, III, Part II, 1895, pp. 111–128. Geol. Sur. Canada.)

The paper contains no descriptions, but synonymy and localities are given.

Whitfield, R. P. Contributions to the paleontology of Ohio. (Geol. Sur. Ohio, VII, 1895, pp. 407–494, pls. i–xii.)

Contains a description of Synocladia rectistyla.

1896.

Harper, George W., and **Bassler, R. S.** Catalogue of the fossils of the Trenton and Cincinnati periods, occurring in the vicinity of Cincinnati, Ohio. Cincinnati, 1896. 34 pp.

A list of fossils, including bryozoa, showing their vertical range.

Smith, James Perrin. Marine fossils from the Coal Measures of Arkansas. (Proc. American Phil. Soc., XXXV, 1896, pp. 213–285, pls. xvi–xxiv.)

Records the occurrence of several Coal Measures bryozoa at Poteau Mountain, Indian Territory, and in northeastern Arkansas.

* **Ulrich, E. O.** Bryozoa. (Zittel's Text-book of Paleontology (English edition). Translated and edited by Charles R. Eastman. Vol. 1, Part I.) Bryozoa, pp. 257–291, figs. 411–488.

This work gives a comprehensive survey and classification of all the bryozoa. Five suborders are recognized: Ctenostomata, Cyclostomata, Cryptostomata, Trepostomata, and Chilostomata. One new genus is defined, Cyclotrypa.

1897.

* **Simpson, George B.**

A handbook of the genera of the North American Paleozoic Bryozoa. With an introduction upon the structure of living species. (Fourteenth Ann. Rep. State Geologist New York for the year 1894, Albany, 1895 [distributed 1897], pp. 407–608, pls. A–E, i–xxv.) This report of the State Geologist also appears as part of the Forty-eighth Annual Report of the New York State Museum.

To give a critical review of this work would require a volume in itself. The "Historical introduction," "Bibliography of recent forms," and the account of the structure of the polypide, or living animal, are valuable, bringing together, as they do, much useful knowledge. The list of North American species is but a condensation from Miller's North American Geology and Paleontology, without an attempt even to refer any of the species to the new genera described in succeeding pages of the Handbook. The "Descriptions of Families and Genera" forms the most disappointing part of the work. Many new, and generally needless, family names are proposed. As one of numerous similar examples, we may mention that the family Monticuliporidæ is defined as embracing forms with cystiphragms and no interstitial cells, and then a new family, Prasoporidæ, is proposed for forms having cystiphragms and interstitial cells. But the genus Monticulipora often has interstitial cells, and, moreover, Simpson figures it so. Many of the genera proposed are very artificial and in at least one instance imaginary (see remark under Lyropora in the Catalogue following). Diagnoses of genera by other authors are in some cases put in quotation marks, but are entirely misquoted; misspellings of generic and specific names are frequent; a number of important genera are omitted, whether designedly or not is not stated; sometimes reproductions of figures of other authors, and also of Hall and Simpson, are given under different names; some specific names, which are found nowhere else, are given without explanation or definition.

The new generic names found in this handbook are Lyroporidra, Anastomopora, Thamnocella, Stictocella, Stictoporidra (page 527; called Stictoporina by error on page 532), Fistuliporina, Fistuliporella, Ptilocella, Fistuliporidra, Fistulicella.

Whiteaves, J. F. The fossils of the Galena-Trenton and Black River formations of Lake Winnepeg and its vicinity. (Paleozoic Fossils, III, Part II, 1897, pp. 129–242, pls. xvi–xxii.) Bryozoa, pp. 161–163, pls. xviii, xix (in part).

The new species are Stomatopora Canadensis, Mesotrypa Selkirkensis.

1898.

Whiteaves, J. F. On some additional or imperfectly understood fossils from the Hamilton formation of Ontario, with a revised list of the species therefrom. (Contributions to Canadian Paleontology, I, Part V, 1898, pp. 361–418, pls. xlviii–l. Geol. Surv. Canada.) Bryozoa, pp. 376–382, pl. xlviii (in part).

One new species is described, Scalaripora Canadensis.

1899.

Grabau, Amadeus W. Geology and Paleontology of Eighteen-Mile Creek and the Lake Shore Sections of Erie County, New York. Part II. Paleontology. (Bulletin of the Buffalo Society of Natural Sciences, VI, 1899, pp. 98–403, 263 figs.) Bryozoa, pp. 136–139, 158–179, figs. 47–77A.

In the fauna of this region the author enumerates, giving brief descriptions copied or adapted from Hall and Simpson's Paleontology of New York, VI, or Simpson's Handbook of Genera, some forty species of bryozoa. Diagnoses are also given of the genera used. One new species appears, Monotrypa amplectens.

1900.

Grabau, Amadeus W. The faunas of the Hamilton group of Eighteen-Mile Creek and vicinity, in western New York. (Sixteenth Annual Report of the State Geologist of New York for the year 1896, New York and Albany, 1899, [issued April, 1900], pp. 227–335.)

In the fauna is noted the occurrence of seven species of bryozoa. In a later work, but appearing earlier (see under 1899), the author gives a full account of the bryozoan fauna.

Rogers, Austin F. New Bryozoans from the coal measures of Kansas and Missouri. (Kansas University Quarterly, ser. A, IX, No. 1, January, 1900, 12 pp., pls. i–iv.)

This paper came to hand too late to be incorporated into our work at any point but this. It contains good descriptions and figures of the following species, all new: Stenopora spinulosa, spissa, Cystodictya inequimarginata, divisa, Streblotrypa ulrichi, striatopora, Fenestella hexagonalis, dentata, kansasensis, ovatipora, missouriensis, Polypora aspera, flexuosa, elliptica, triangularis, Thamniscus tenuiramus, Pinnatopora pyriformipora, ptiloporoidea, multipora, Septopora interporata, Acanthocladia pinnata, Rhombocladia delicata.

Rhombocladia is a new genus which the author refers provisionally to the Acanthocladiidæ. Streblotrypa ulrichi is a synonym for Streblotrypa prisca (Gabb and Horn).

CHRONOLOGICAL CATALOGUE OF PAPERS CONTAINING DESCRIPTIONS AND ILLUSTRATIONS OF AMERICAN MESOZOIC AND TERTIARY BRYOZOA, WITH LISTS OF THE SPECIES DESCRIBED THEREIN.

[Papers in which an asterisk (*) precedes the name of the author are of special importance to the student of bryozoa.]

1829.

Morton, Samuel G. Note: Containing a notice of some fossils recently discovered in New Jersey. In Vanuxem and Morton's observations on the geology and organic remains of the Secondary, Tertiary, and Alluvial formations of the Atlantic coast of the United States of America. Philadelphia, 1828. (Extract from Jour. Acad. Nat. Sci. Philadelphia, VI, 1829, pp. 120–129.)

On page 62 (p. 124 of the Journal) the author records the occurrence of fragments of Eschara, Flustra, and Retepora from the marl pits on Big Timber Creek.

1830.

Morton, Samuel G. Synopsis of the Organic Remains of the Ferruginous Sand Formation of the United States. (Amer. Jour. Sci. Arts, ser. 1, XVII, 1830, pp. 274–295.)

On page 288 the author notes the occurrence of fragments of Eschara, Flustra, and Retepora from Gloucester County, New Jersey.

1833.

Lea, Isaac. Contributions to Geology. Philadelphia, 1833. 227 pp., 6 pls.

The bryozoa described are—

Lunulites Bouei, p. 189, pl. vi, 202.
Lunulites Duclosii, p. 190, pl. vi, 203.
Orbitolites interstitia, p. 191, pl. vi, 204.
Orbitolites discoidea, p. 192, pl. vi, 205.
All are from the Eocene of Claiborne, Alabama.

1834.

Morton, Samuel G. Synopsis of the Organic Remains of the Cretaceous Group of the United States. Philadelphia, 1834. 88+8 pp., 19 pls.

The bryozoa described are—

Eschara digitata n. sp., p. 79, pl. xiii, 8.
Flustra sagena n. sp., p. 79, pl. xiii, 7.
Retepora sp. und., p. 79.
All come from the Cretaceous of New Jersey.

1841.

Conrad, T. A. Observations on the Secondary and Tertiary formations of the southern Atlantic States, by James T. Hodge. With an appendix by T. A. Conrad. (Amer. Jour. Sci. Arts, ser. 1, XLI, 1841, pp. 344–348.)

The bryozoa in the paper are—
Lunulites denticulata, p. 348.
Lunulites depressa, p. 348.
Medial Tertiary: Natural Well, Duplin County, North Carolina.

1845.

***Lonsdale, William.** Account of six species of Polyparia obtained from Timber Creek, New Jersey. (Quar. Jour. Geol. Soc. London, I, 1845, pp. 65–75, 22 figs. in text.)

The bryozoa described are—
Idmonea contortilis n. sp., p. 68.
Tubulipora Megæra n. sp., p. 69.
Cellepora tubulata n. sp., p. 70.
Escharina ? sagena (Morton), p. 71.
Eschara digitata Morton, p. 73.

***Lonsdale, William.** Report on the Corals from the Tertiary formations of North America. (Quar. Jour. Geol. Soc. London, I, 1845, pp. 495–509.)

The following bryozoa are included in the paper:
Heteropora ? tortilis n. sp., p. 500. Miocene: Williamsburg, Petersburg.
Escharina tumidula n. sp., p. 502. Miocene: Petersburg.
Lunulites denticulata Conrad, p. 503. Miocene: Petersburg.
Cellepora informata n. sp., p. 505. Miocene: Petersburg, Virginia.
Cellepora umbilicata n. sp., p. 507. Miocene: Petersburg.
Cellepora quadrangularis n. sp., p. 508. Miocene: Williamsburg, Evergreen.
Cellepora similis n. sp., p. 509. Miocene: Williamsburg.

***Lonsdale, William.** Account of twenty-six species of Polyparia obtained from the Eocene Tertiary formation of North America. (Quar. Jour. Geol. Soc. London, I, pp. 509–533.)

Tubulipora proboscidea ? (Milne-Edwards), p. 522. Eocene: Rock's Bridge.
Idmonea maxillaris n. sp., p. 523. Eocene: Wantoot, South Carolina.
Idmonea commiscens n. sp., p. 524. Eocene: Rock's Bridge.
Hippothoa tuberculum n. sp., p. 527. Eocene: Rock's Bridge.
Eschara tubulata n. sp., p. 528. Eocene: Wilmington.
Eschara petiolus n. sp., p. 528. Eocene: Eutaw.
Eschara incumbens n. sp., p. 529. Eocene: Rock's Bridge.
Eschara linea n. sp., p. 530. Eocene: Eutaw.
Eschara viminea n. sp., p. 530. Eocene: Eutaw.
Lunulites sexangula n. sp., p. 531. Eocene: Wilmington.
Lunulites distans n. sp., p. 531. Eocene: Wilmington, Wantoot(?).
Lunulites contigua n. sp., p. 533. Eocene: Wilmington.

1847.

Conrad, T. A. Observations on the Eocene formation, and descriptions of one hundred and five new fossils of that period, from the vicinity of Vicksburg, Mississippi, with an appendix. (Proc. Acad. Nat. Sci. Philadelphia, III, 1847, pp. 280–299.)

Lunulites Vicksburgensis, p. 296.

The same paper occurs also in Journal Acad. Nat. Sci. Philadelphia, ser. 2, I, 1848, pp. 111–134, pls. xi–xiv.

Lunulites vicksburgensis, p. 127.

1855.

Conrad, T. A. Note on the Miocene and Post-Pliocene deposits of California, with descriptions of two new fossil corals. (Proc. Acad. Nat. Sci. Philadelphia, VII, 1855, p. 441.)

Idmonea Californica, p. 441. Miocene: Santa Barbara, California.

Lichenopora Californica, p. 441. Miocene: Santa Barbara, California.

Obs. These deposits have since been determined to be of Pleistocene age.

1857.

Tuomey, M., and **Holmes, F. S.** Pleiocene Fossils of South Carolina. Charleston, 1857. xvi+152 pp., 30 pls.

The bryozoa are—

Lunulites denticulata Conrad, p. 11, pl. iv, 1–5. Darlington district, South Carolina.

Cellepora formosa n. sp., p. 12, pl. iv, 6. Darlington district, South Carolina.

Cellepora tessellata n. sp., p. 13, pl. iv, 7. Giles Bluff, Peedee River.

Cellepora radiata n. sp., p. 13, pl. iv, 8. Smith's, Goose Creek.

Cellepora depressa n. sp., p. 14, pl. iv, 9. Smith's, Goose Creek.

Membranipora lacinia n. sp., p. 14, pl. iv, 10. Smith's, Goose Creek.

Reptocelleporaria informata (Lonsdale), p. 15, pl. iv, 11, 12. Darlington district.

Reptocelleporaria similis (Lonsdale), p. 16, pl. iv, 13, 14. Darlington district, South Carolina; Petersburg, Va.

Heteropora tortilis Lonsdale, p. 16, pl. iv, 15, 16. Smith's, Goose Creek.

1858.

Emmons, Ebenezer. Report of the North Carolina Geological Survey. Raleigh, 1858. Paleontology, pp. 193–314.

The bryozoa described are—

Lunulites denticulata, p. 311, figs. 248, 249. Miocene: Beds on Neuse and Cape Fear rivers.

Lunulites contigua, p. 311, figs. 250, 251. Eocene: Wilmington, North Carolina.

Lunulites oblongus n. sp., p. 312, figs. 252, 253. Locality not given.

Discoporella umbellata, p. 312, figs. 254, 255. Locality not given.

1860.

* **Gabb, William M.**, and **Horn, George H.** Descriptions of new Cretaceous corals from New Jersey. (Proc. Acad. Nat. Sci. Philadelphia, XII, 1860, pp. 366–367.)

Hippothoa irregularis, p. 366.

Cellepora bilabiata, p. 366.

Cellepora carinata, p. 366.

Cellepora typica, p. 366.

Reticulipora sagena, p. 366.

Reptomulticava cepularis, p. 367.

Multicrescis parvicella, p. 367.

Localities are not given.

* **Gabb, William M.**, and **Horn, George H.** Descriptions of new species of American Tertiary and Cretaceous fossils. (Jour. Acad. Nat. Sci. Philadelphia, ser. 2, IV, 1860, pp. 375–404.)

The bryozoa described are—

Hypothoa irregularis G. & H., p. 400, pl. lxix, 18, 20. Cretaceous: Timber Creek, New Jersey.

Cellepora bilabiata G. & H., p. 400, pl. lxix, 21, 23. Cretaceous: Timber Creek, New Jersey.

Cellepora carinata G. & H., p. 400, pl. lxix, 24, 26. Cretaceous: Timber Creek, New Jersey.

Cellepora typica G. & H., p. 400, pl. lxix, 27, 29. Cretaceous: Marl of New Jersey.

Reticulipora sagena G. & H., p. 400, pl. lxix, 30, 32. Cretaceous: Timber Creek, New Jersey.

Reptomulticava cepularis G. & H., p. 401, pl. lxix, 33, 35. Cretaceous: Timber Creek, New Jersey.

Multicrescis parvicella G. & H., p. 401, pl. lxix, 36, 38. Cretaceous: Timber Creek, New Jersey.

Acerviclausa n. gen. G. & H., p. 403.

Acerviclausa vermicularis G. & H., p. 403, pl. lxix, 42, 44. Cretaceous: Near Mullica Hill, New Jersey.

Heterocrisina n. gen. G. & H., p. 404.

Heterocrisina Abbottii G. & H., p. 404, pl. lxix, 45, 47. Cretaceous: Near Mullica Hill, New Jersey.

Holmes, Francis S. Postpleiocene fossils of South Carolina. Charleston, 1860. xii+v+122 pp., 28 pls.

The bryozoa described are—

Reptocelleporaria informata (Lonsdale), p. 6, pl. i, 5. Charleston, South Carolina.

Lunulites denticulata Conrad, p. 6, pl. ii, 4–4b. Simmons'; Abbapoola; St. Andrew's.

1862.

* **Gabb, William M.**, and **Horn, George H.** Monograph of the fossil Polyzoa of the Secondary and Tertiary formations of North America. (Jour. Acad. Nat. Sci. Philadelphia, ser. 2, V, 1862, pp. 111–178, pls. xix–xxi.)

Eschara Lamarck, p. 114.

Eschara digitata Morton, p. 114. Cretaceous: Timber Creek and Mullica Hill, New Jersey.

Eschara tubulata Lonsdale, p. 115. Eocene: Wilmington, North Carolina.

Eschara petiolus Lonsdale, p. 116. Eocene: Eutaw, South Carolina.

Eschara incumbens Lonsdale, p. 116. Eocene: Rock's Bridge.

Eschara ? viminea Lonsdale, p. 116. Eocene: Eutaw, South Carolina.

Eschara texta n. sp., p. 117, pl. xix, 1. Eocene: Charleston, South Carolina.

Eschara ovalis n. sp., p. 118, pl. xix, 2. Eocene: Claiborne, Alabama.

Eschara ? fragilissima n. sp., p. 118, pl. xix, 3. Miocene: St. Marys River, Maryland.

Lunulites Lamarck, p. 119.

Lunulites sexangula Lonsdale, p. 119. Eocene: Wilmington, North Carolina.

Lunulites distans Lonsdale, p. 119. Locality not given.

Lunulites interstitia (Lea), p. 120. Eocene: Claiborne, Alabama.

Lunulites contigua Lonsdale, p. 121. Eocene: Wilmington, North Carolina.

Lunulites oblonga Emmons, p. 121. Miocene (?): North Carolina.

Semieschara D'Orbigny, p. 121.

Semieschara tubulata n. sp., p. 122, pl. xix, 5. Eocene: Claiborne, Alabama.

Cellepora Fabricius, p. 122.

Cellepora prolifica G. & H., p. 124. Cretaceous: Timber Creek, New Jersey.

Cellepora exserta n. sp., p. 125, pl. xix, 6. Cretaceous: Mullica Hill, New Jersey.

Cellepora Janewayi n. sp., p. 126, pl. xix, 7. Cretaceous: Seven miles below Yazoo, Mississippi.

Cellepora pumila n. sp., p. 126, pl. xix, 8. Cretaceous: Timber Creek, New Jersey.

Cellepora cycloris n. sp., p. 127, pl. xix, 9. Eocene: Claiborne, Alabama.

Cellepora inornata n. sp., p. 127, pl. xix, 10. Eocene: (?) Claiborne, Alabama.

Cellepora tumidula D'Orbigny, p. 127. Miocene: Petersburg, Virginia.

Cellepora formosa Tuomey and Holmes, p. 129. Miocene (? Pliocene): Darlington district, South Carolina.

Cellepora tessellata Tuomey and Holmes, p. 129. Miocene (? Pliocene): Giles Bluff, Peedee River, South Carolina.

Cellepora radiata Tuomey and Holmes, p. 129. Miocene (? Pliocene): Goose Creek, South Carolina.

Cellepora depressa Tuomey and Holmes, p. 129. Miocene (? Pliocene): Goose Creek, South Carolina.

Cellepora urceolata n. sp., p. 129, pl. xix, 11, Miocene: New Jersey.

Cellepora californiensis n. sp., p. 130, pl. xix, 12. Postpliocene: Santa Barbara, California.

Cellepora bellerophon n. sp., p. 130, pl. xix, 13. Postpliocene: Santa Barbara, California.

Reptocelleporaria D'Orbigny, p. 131.

Reptocelleporaria aspera n. sp., p. 131, pl. xix, 14. Cretaceous: Timber Creek and near Mullica Hill, New Jersey.

Reptocelleporaria informata D'Orbigny, p. 132. Miocene: Petersburg, Virginia; and South Carolina.

Reptocelleporaria quadrangularis D'Orbigny, p. 132. Locality not given.

Reptocelleporaria similis D'Orbigny, p. 133. Miocene (? Pliocene): Virginia and South Carolina.

Reptocelleporaria glomerata n. sp., p. 134, pl. xix, 15. Eocene: Vicksburg, Mississippi.

Escharipora D'Orbigny, p. 134.

Escharipora typica (G. & H.), p. 134, pl. xix, 16. Cretaceous: Timber Creek and and Mullica Hill, New Jersey.

Escharella D'Orbigny, p. 135.

Escharella micropora n. sp., p. 136, pl. xix, 17. Eocene: ? Alabama.

Repteschcarella D'Orbigny, p. 136.

Repteschcarella carolinensis n. sp., p. 136, pl. xix, 18. Eocene: Charleston, South Carolina.

Repteschcarella Hermannii n. sp., p. 137, pl. xix, 20. Postpliocene: Santa Barbara, California.

Repteschcarella plana n. sp., p. 137, pl. xix, 19. Postpliocene: Santa Barbara, California.

Pholidoloporidæ (new family), p. 138.

Pholidolopora n. gen., p. 138.

Pholidolopora labiata n. sp., p. 138, pl. xix, 21. Postpliocene: Santa Barbara, California.

Oligotresium n. gen., p. 139.

Oligotresium vicksburgensis (Conrad), p. 139, pl. xix, 22. Upper Eocene: Vicksburg, Mississippi.

Escharinella D'Orbigny, p. 140.

Escharinella muralis n. sp., p. 140, pl. xix, 23. Cretaceous: Mullica Hill, New Jersey.

Escharinella ? linea (Lonsdale), p. 140. Eocene: Eutaw, South Carolina.

Ennallipora n. gen., p. 141.

Ennallipora quadrangularis n. sp., p. 141, pl. xx, 24. Miocene: Petersburg, Virginia.

Discoporella D'Orbigny, p. 142.

Discoporella denticulata (Conrad), p. 142, pl. xx, 25. Miocene: Generally distributed from New Jersey to South Carolina.

Reptoporina D'Orbigny, p. 144.

Reptoporina carinata (G. & H.), p. 144. Locality not given.

Reptoporina customata n. sp., p. 144, pl. xx, 26. Postpliocene: Santa Barbara, California.

Multiporina n. gen., p. 145.

Multiporina umbilicata (Lonsdale), p. 145, pl. xx, 27. Miocene: Petersburg, Virginia.

Reptescharellina D'Orbigny, p. 146.

Reptescharenilla prolifera n. sp., p. 146, pl. xx, 28. Cretaceous: Mullica Hill, New Jersey.

Reptescharenilla disparilis n. sp., p. 147, pl. xx, 29. Postpliocene: Santa Barbara, California.

Reptescharenilla ? Hermannii n. sp., p. 147, pl. xx, 30. Postpliocene: Santa Barbara, California.

Reptescharenilla cornuta n. sp., p. 147, pl. xx., 31. Postpliocene: Santa Barbara, California.

Escharipora D'Orbigny, p. 148.

Escharipora distans n. sp., p. 148, pl. xx, 32. Cretaceous: Timber Creek, New Jersey.

Escharipora Abbottii n. sp., p. 149, pl. xx, 33. Cretaceous: Mullica Hill, New Jersey.

Escharipora immersa n. sp., p. 149. Cretaceous: Timber Creek, New Jersey.

Pliophloea, n. gen., p. 150.

Pliophloea sagena (Morton), p. 150, pl. xx, 34. Cretaceous: Timber Creek and Mullica Hill, New Jersey.

Reptescharipora D'Orbigny, p. 151.

Reptescharipora marginata n. sp., p. 151, pl. xx, 35. Cretaceous: Mullica Hill, New Jersey.

Biflustra D'Orbigny, p. 152.

Biflustra torta n. sp., p. 152, pl. xx, 36. Cretaceous: Timber Creek and Mullica Hill, New Jersey.

Biflustra disjuncta n. sp., p. 153, pl. xx, 37. Cretaceous: Timber Creek and Mullica Hill, New Jersey.

Siphonella Hagenow, p. 154.

Siphonella multipora n. sp., p. 154, pl. xx, 38. Postpliocene: Santa Barbara, California.

Discoflustrellaria D'Orbigny, p. 154.

Discoflustrellaria Bouei (Lea), p. 154. Eocene: Claiborne, Alabama.

Cupularia Lamarck, p. 155.

Cupularia discoidea (Lea), p. 155. Eocene: Claiborne, Alabama.

Heteractis n. gen., p. 156.

Heteractis Duclosii (Lea), p. 156, pl. xx, 39. Eocene: Claiborne, Alabama.

Pyripora D'Orbigny, p. 157.

Pyripora irregularis (G. & H.), p. 157, pl. xx, 40. Cretaceous: Timber Creek and Mullica Hill, New Jersey.

Membranipora Blainville, p. 157.

Membranipora abortiva n. sp., p. 157, pl. xx, 41. Cretaceous: Timber Creek and Mullica Hill, New Jersey.

Membranipora perampla n. sp., p. 158, pl. xx, 42. Cretaceous: Mullica Hill, New Jersey.

Membranipora plebia n. sp., p. 158, pl. xx, 43. Cretaceous: Mullica Hill, New Jersey.

Membranipora sexpunctata n. sp., p. 159, pl. xx, 44. Miocene or Eocene: Locality unknown.

Membranipora speciosa (G. & H.), p. 159, pl. xx, 45. Miocene (?): Chiriqui, Central America.

Membranipora Californica n. sp., p. 160, pl. xx, 46. Postpliocene: Santa Barbara, California.

Membranipora Barbarensis n. sp., p. 160, pl. xx, 47. Postpliocene: Santa Barbara, California.

Flustrella D'Orbigny, p. 160.

Flustrella capistrata n. sp., p. 161, pl. xx, 48. Cretaceous: Mullica Hill, New Jersey.

Flustrella cylindrica n. sp., p. 161, pl. xx, 49. Cretaceous: Mullica Hill, New Jersey.

Reptoflustrella D'Orbigny, p. 161.

Reptoflustrella ? heteropora n. sp., p. 162, pl. xx, 50. Cretaceous: Mullica Hill and Timber Creek, New Jersey.

Reptoflustrella tubulata n. sp., p. 162, pl. xx, 51. With Membranipora sexpunctata. Locality unknown, probably from the Virginia Miocene.

Pyriflustrella D'Orbigny, p. 163.

Pyriflustrella tuberculum D'Orbigny, p. 163. Locality not given.

Retelea D'Orbigny, p. 164.

Retelea ovalis n. sp., p. 164, pl. xxi, 52. Cretaceous: Mullica Hill, New Jersey.

Filifascigera D'Orbigny, p. 165.

Filifascigera megæra (Lonsdale), p. 165, pl. xxi, 53. Cretaceous: Timber Creek, New Jersey.

Fascipora D'Orbigny, p. 165.

Fascipora Americana n. sp., p. 165, pl. xxi, 54. Cretaceous: Timber Creek and Mullica Hill, New Jersey.

Spiropora D'Orbigny, p. 166.

Spiropora calamus n. sp., p. 166, pl. xxi, 55. Cretaceous: Timber Creek, New Jersey.

Idmonea Lamouroux, p. 167.

Idmonea contortilis Lonsdale, p. 167. Cretaceous: Timber Creek and Mullica Hill, New Jersey.

Idmonea maxillaris Lonsdale, p. 167. Eocene: Wantoot, South Carolina.

Idmonea commiscens Lonsdale, p. 168. Eocene: Rocks Bridge.

Idmonea Californica Conrad, p. 168, pl. xxi, 56. Postpliocene: Santa Barbara, California.

Semitubigera D'Orbigny, p. 169.

Semitubigera tuba n. sp., p. 169, pl. xxi, 57. Postpliocene: Santa Barbara, California.

Entalophora Lamouroux, p. 170.

Entalophora quadrangularis n. sp., p. 170, pl. xxi, 58. Cretaceous: Timber Creek and Mullica Hill, New Jersey.

Entalophora Conradii n. sp., p. 170, pl. xxi, 59. Cretaceous: Mullica Hill, New Jersey.

Entalophora proboscideoides (Lonsdale), p. 170, pl. xxi, 60. Eocene: ? Alabama.

Entalophora punctulata n. sp., p. 171, pl. xxi, 61. Postpliocene: Santa Barbara, California.

Diastopora Lamouroux, p. 171.

Diastopora lineata n. sp., p. 172, pl. xxi, 62. Cretaceous: Timber Creek and Mullica Hill, New Jersey.

Stomatopora Bronn, p. 172.

Stomatopora regularis n. sp., p. 172, pl. xxi, 63. Cretaceous: New Jersey.

Reticulipora D'Orbigny, p. 173.

Reticulipora sagena G. & H., p. 173. Cretaceous: Timber Creek, New Jersey.

Reticulipora dichotoma n. sp., p. 173, pl. xxi, 64. Cretaceous: Timber Creek, New Jersey.

Bicrisina D'Orbigny, p. 173.

Bicrisina Abbotii (G. & H.), p. 174, pl. xxi, 65. Cretaceous: Mullica Hill, New Jersey.

Crisina D'Orbigny, p. 174.

Crisina serrata n. sp., p. 174, pl. xxi, 66. Postpliocene: Santa Barbara, California.

Cavea D'Orbigny, p. 175.

Cavea prisca n. sp., p. 175, pl. xxi, 67. Carboniferous (?): Fort Belknap, Texas.

Lichenopora Defrance, p. 176.

Lichenopora Californica Conrad, p. 176, pl. xxi, 68. Postpliocene: Santa Barbara, California.

Reptomulticava D'Orbigny, p. 176.

Reptomulticava cepularis G. & H., p. 177. Cretaceous: Timber Creek, New Jersey.

Crescis D'Orbigny, p. 177.

Crescis labiata n. sp., p. 177, pl. xxi, 69. Cretaceous: Mullica Hill and Timber Creek, New Jersey.

Multicrescis D'Orbigny, p. 178.

Multicrescis parvicella G. & H., p. 178. pl. xxi, 70. Cretaceous: Mullica Hill and Timber Creek, New Jersey.

Multicrescis tortilis (Lonsdale), p. 178. Miocene (? Pliocene): Virginia and South Carolina.

Pumiscaria n. gen., p. 179. Type: "Alveolites glomeratus" Say, from the seacoast of New Jersey.

1870.

Credner, H. Die Kreide von New Jersey. (Zeitschriften der Deutsch. Geol. Gesellsch., XXII, 1870, pp. 191–251, pl. iv.)

Ditaxia compressa (Goldfuss), p. 220. Cretaceous: Timber Creek, New Jersey.

Eschara dichotoma (Goldfuss), p. 218. Cretaceous: Brownsville, New Jersey.

1879.

White, Charles A. Paleontological Papers No. 11. Remarks upon certain Carboniferous fossils from Colorado, Arizona, Idaho, and Wyoming, and certain Cretaceous corals from Colorado, together with descriptions of new forms. (Bull. U. S. Geol. Geogr. Sur. Terr. (Hayden's), V, pp. 209–221.)

Chætetes ?? demissus n. sp., p. 220. Cretaceous (Fox Hills group): Six miles south of Fort Collins, Colorado.

The author is inclined to think this a bryozoan.

White, Charles A. Report on the Paleontological Field Work for the season of 1877: Laramie Fossils. (Eleventh Ann. Rep. U. S. Geol. Geogr. Sur. Terr. (Hayden's), 1879, pp. 161–272.)

Membranipora (?), pp. 216, 217. Cretaceous (Laramie group): Point of Rocks Station, Wyoming.

Membranipora (?), p. 242. Cretaceous (Laramie group): Bear River Valley, Wyoming.

1882.

Ulrich, E. O. American Paleozoic Bryozoa. (Jour. Cincinnati Soc. Nat. Hist., V, 1882.)

Heteropora attenuata n. sp., p. 144, pl. vi, 12. Cretaceous: Pulaski County, Arkansas.

Heteropora consimilis n. sp., p. 145, pl. vi, 11. Cretaceous: Pulaski County, Arkansas.

1887.

White, Charles A. Contributions to the paleontology of Brazil. [Contribuiçôes á Paleontologia do Brazil.] (Archivos do Museo Nacional do Rio de Janeiro, VII, 1887.)

Lunulites pileolus n. sp., pp. 208–209, pl. xviii, 21–23. Cretaceous: Rio Piabas, Provincia do Pará, Brazil.

1890.

Gregorio, Antonio de. Monographie de la Faune Eocenique de l'Alabama et surtout de celle de Claiborne de l'Etage Parisien. (Annales de Géologie et de Paléontologie. Livraisons VII, VIII. Palermo, 1890. 316 pp., 46 pls.)

The bryozoa described from the Eocene of Claiborne, Alabama, are:

Crisia læta De Greg., p. 239, pl. 39, f. 10, 11.
Myriozoum propepunctatum De Greg., p. 239, pl. 39, f. 12–13.
Myriozoum fervens De Greg., p. 239, pl. 39, f. 14–15.
Idmonea subdisticha De Greg., p. 239, pl. 39, f. 16–20.
Entalophora proboscidoides G. & H., p. 240, pl. 39, f. 26–27.
Entalophora amœna De Greg., p. 240, pl. 39, f. 21.
Hornera mirifica De Greg., p. 240, pl. 39, f. 31–32.
Hornera multiramosa De Greg., p. 240, pl. 39, f. 28–30.
Hornera claibornensis De Greg., p. 241, pl. 39, f. 22–23, 33–34.
Hornera sp. (?), p. 241, pl. 39, f. 24–25.
Eschara (?) spongiopsis De Greg., p. 241, pl. 40, f. 1–2.
Eschara ovalis G. & H., p. 241, pl. 40, f. 3–5.
Escharella sifra De Greg., p. 242, pl. 40, f. 6–7.
Escharella micropora G. & H., p. 242, pl. 40, f. 8–22, 23.
Escharella micropora var. asperulata De Greg., p. 242, pl. 40, f. 21–22.
Semieschara tubulata G. & H., p. 242, pl. 40, f. 24–28, 29–31.
Vincularia (?) insolita De Greg., p. 243, pl. 40, f. 32–37.
Lunulites (Discoflustrellaria) Bouei Lea, p. 243, pl. 41, f. 1–4, 5–6, 7–9; pl. 42, f. 1–6.
Idem, var. concava De Greg., p. 244, pl. 41, f. 10–14.
Idem, var. depressa De Greg., p. 244, pl. 41, f. 15–19.
Idem, var. ellipsoides De Greg., p. 245, pl. 41, f. 20–21, 23–25.

Idem, var. Duclosii (Lea) De Greg., non G. & H., p. 245, pl. 41, f. 26–31, 32–33.
Idem, var. truncata De Greg., p. 245, pl. 41, f. 34–46.
Idem, var. almina De Greg., p. 246, pl. 42, f. 7–10.
Idem, var. tiza De Greg., p. 246, pl. 42, f. 11–12.
Idem, var. minutecellulata De Greg., p. 246, pl. 42, f. 13–15.
Batopora convivialis De Greg., p. 246, pl. 42, f. 30–33.
Cellepora inornata G. & H., p. 247, pl. 43, f. 2, 3–4.
Cellepora cycloris G. & H., p. 247, pl. 43, f. 1.
Celleporaria figula De Greg., p. 247, pl. 43, f. 5–6.
Biflustra (?) supradubia De Greg., p. 248, pl. 43, f. 11–12.
Membranipora simplex De Greg., p. 248, pl. 43, f. 7–8.
Membranipora contemplata De Greg., p. 248, pl. 43, f. 9–10.
Dimiclausa De Greg., n. subgen., p. 248.
Lunulites (Dimiclausa) fenestrata De Greg., p. 249, pl. 42, f. 23–27.
Lunulites (Cupularia) interstitia (Lea) De Greg., p. 249, pl. 42, f. 16–21, 22.
Cupularia discoidea Lea sp., p. 249, pl. 42, f. 28.
Lunulites distans Lonsdale, sp. dub., p. 250, pl. 42, f. 29.

CATALOGUE OF THE GENERA AND SPECIES OF AMERICAN PALEOZOIC BRYOZOA, INCLUDING BIBLIOGRAPHY AND SYNONYMY.

ACANTHOCLADIA King. Genotype: Ceratophytes anceps Schlotheim.

1849. Acanthocladia. King, Ann. Mag. Nat. Hist., ser. 2, II, p. 389.
1850. Acanthocladia. King, Mon. British Permian Foss., p. 48.
1860. Acanthocladia. Eichwald, Lethæa Rossica, I, p. 384.
1880. Acanthocladia. Zittel, Handb. der Pal., p. 603.
1885. Acanthocladia. Waagen and Pichl, Pal. Indica, Ser. XIII, p. 811.
1886. Acanthocladia. Ulrich, Contr. American Pal., I, p. 6.
1889. Acanthocladia. Miller, North American Geol. Pal., p. 291.
1890. Acanthocladia. Ulrich, Geol. Surv. Illinois, VIII, pp. 398, 635.
1896. Acanthocladia. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 283.
1897. Acanthocladia. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 522.

Acanthocladia americana Swallow. Not recognizable.

1858. Acanthocladia anceps ? Schlotheim. If distinct A. americana proposed. Swallow, Trans. St. Louis Acad. Sci., I, p. 180.
1859. Acanthocladia americana. Shumard, Trans. St. Louis Acad. Sci., I, p. 388.
1860. Acanthocladia americana. Meek and Hayden, Proc. Acad. Nat. Sci., Philadelphia, p. 24.

Lower Permian or Upper Coal Measures: Cottonwood Valley, Kansas; Guadalupe Mountains, Texas and New Mexico.

Acanthocladia anceps Swallow (not Schlotheim). See Acanthocladia americana Swallow.

Acanthocladia fruticosa Ulrich.

1890. Acanthocladia fruticosa. Ulrich, Geol. Surv. Illinois, VIII, p. 635, pl. lxv, 2–2c.

Upper Coal Measures: Springfield, Illinois.

ACANTHOCLEMA Hall. Genotype: Trematopora alternata Hall.

1886. Acanthoclema. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, explanation pl. xxv.
1887. Acanthoclema. Hall and Simpson, Pal. New York, VI, p. xv.
1889. Acanthoclema. Miller, North American Geol. Pal., p. 291.
1890. Acanthoclema. Ulrich, Geol. Surv. Illinois, VIII, pp. 402, 661.
1897. Acanthoclema. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 552.

Acanthoclema alternatum (Hall).

1883. Trematopora alternata. Hall, Trans. Albany Institute, X, p. 148 (abstract, 1881, p. 6).
1886. Acanthoclema alternata. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxv, 8–10.
1887. Acanthoclema alternatum. Hall and Simpson, Pal. New York, VI, p. 72, pl. xxv, 8–10.

Acanthoclema alternatum (Hall)—Continued.

1897. Acanthoclema alternatum. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xvi, 6, 7.

Upper Helderberg: Onondaga Valley, New York.

Acanthoclema bispinulatum Miller. See Orthopora bispinulata (Hall).

Acanthoclema confluens (Ulrich).

1888. Rhombopora confluens. Ulrich, Bull. Denison Univ., IV, p. 91, pl. xiv, 17.

1890. Acanthoclema confluens, Ulrich. Geol. Surv. Illinois, VIII, p. 662, pl. lxx, 5-5*b*.

Waverly: Lodi, Ohio.

Keokuk: Nauvoo, Illinois.

Acanthoclema divergens Hall and Simpson.

1883. Trematopora? sp. indt. Hall, Rep. State Geologist New York for the year 1882, pl. xxv, 2.

1887. Acanthoclema divergens. Hall and Simpson, Pal. New York, VI, p. 73, pl. xxviii, 2.

Upper Helderberg: Onondaga Valley, New York.

Acanthoclema Hamiltonense Hall and Simpson. See Streblotrypa hamiltonensis (Nicholson).

Acanthoclema ovatum Hall and Simpson.

1883. Trematopora? sp. indt. Hall, Rep. State Geologist New York for the year 1882, pl. xxv, 3.

1887. Acanthoclema ovatum. Hall and Simpson, Pal. New York, VI, p. 73, pl. xxviii, 3.

Upper Helderberg: Onondaga Valley, New York.

Acanthoclema scutulatum Hall and Simpson. See Streblotrypa scutulata (Hall) and Rhombopora reticulata (Hall).

Acanthoclema sulcatum Hall and Simpson.

1887. Acanthoclema sulcatum. Hall and Simpson, Pal. New York, VI, p. 192, pl. lv. 7, pl. lvi. 7.

Hamilton: Near Canandaigua Lake, New York.

Acanthoclema triseriale (Hall).

1883. Stictopora? triserialis. Hall, Rep. State Geologist New York for the year 1882, pl. xxv, 6, 7.

1887. Acanthoclema triseriale, Hall and Simpson, Pal. New York, VI, p. 74, pl. xxviii, 6, 7.

Upper Helderberg: Near Caledonia, New York.

ACROGENIA Hall. Genotype: Acrogenia prolifera Hall.

1883. Acrogenia. Hall, Trans. Albany Institute, X, p. 193 (abstract, 1881, p. 193).

1884. Acrogenia. Hall, Rep. State Geologist New York for the year 1883, p. 51.

1887. Acrogenia. Hall and Simpson, Pal. New York, VI, p. xx.

1889. Acrogenia. Miller, North American Geol. Pal., p. 291.

1890. Acrogenia. Ulrich, Geol. Surv. Illinois, VIII, p. 388.

1897. Acrogenia. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 544.

1899. Acrogenia. Grabau, Bull. Buffalo Acad. Nat. Sci., VI, p. 175.

Acrogenia prolifera Hall.

1883. Acrogenia prolifera. Hall, Trans. Albany Institute, X, p. 194 (abstract, 1881, p. 194).

Acrogenia prolifera Hall—Continued.
1884. Acrogenia prolifera. Hall, Rep. State Geologist New York for the year 1883, p. 52.
1887. Acrogenia prolifera. Hall and Simpson, Pal. New York, VI, p. 267, pl. lxiii, 7–15.
1889. Acrogenia prolifera. Miller, North American Geol. Pal., fig. 448 (p. 291).
1897. Acrogenia prolifera. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xv, 11–20.
1899. Acrogenia prolifera. Grabau, Bull. Buffalo Acad. Nat. Sci., VI, p. 175, fig. 72.
Hamilton: Bellona, Lodi Landing (Seneca Lake), and Darien Center, New York.

Actinostoma. Young and Young. See Fenestella Lonsdale.

ACTINOTRYPA Ulrich. Genotype: Fistulipora peculiaris Rominger.
1889. Actinotrypa. (Ulrich, in press), Miller, North American Geol. Pal., p. 291.
1890. Actinotrypa. Ulrich, Geol. Surv. Illinois, VIII, p. 386.
1897. Actinotrypa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 540.

Actinotrypa peculiaris (Rominger).
1866. Fistulipora peculiaris. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 123.
1890. Actinotrypa peculiaris. Ulrich, Geol. Surv. Illinois, VIII, p. 503, pl. lxxvii, 3–3*b*.
1894. Actinotrypa peculiaris. Keyes, Missouri Geol. Surv., V, p. 18, pl. xxxiv, 6.
1897. Actinotrypa peculiaris. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 97–99 (p. 540).
Keokuk: Lagrange, Missouri; Keokuk, Iowa; Warsaw and Nauvoo, Illinois.

Alecto of authors. See Stomatopora Bronn.

Alecto auloporoides Nicholson. See Proboscina auloporoides (Nicholson).

Alecto? Canadensis Nicholson. See Hederella canadensis (Nicholson).

Alecto confusa Nicholson. See Proboscina confusa (Nicholson).

Alecto frondosa Nicholson. See Proboscina frondosa (Nicholson).

Alecto inflata Hall. See Stomatopora inflata (Hall).

Alecto nexilis James. See Batostoma implicatum (Nicholson).

Alveolites Lamarck. Not a bryozoan genus.

Alveolites expansa James. See Ceramopora expansa (James).

Alveolites exsul Hall. See Lioclema? exsul (Hall).

Alveolites irregularis Whitfield. See Ceramoporella? irregularis (Whitfield).

AMPLEXOPORA Ulrich. Genotype: Amplexopora cingulata Ulrich.
1882. Amplexopora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 154.
1883. Amplexopora. Foord, Contr. Micro-Pal. Cambro.-Sil., p. 15.
1889. Amplexopora. Miller, North American Geol. Pal., p. 291.
1890. Ámplexopora. Ulrich, Geol. Surv. Illinois, VIII, pp. 377, 450.
1896. Amplexopora. Ulrich, Zittel's Textb. Pal. (Engl. Ed.), p. 278.
1897. Amplexopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 577.

Amplexopora affinis Ulrich. See Heterotrypa affinis (Ulrich).

Amplexopora barrandei Ulrich. See Heterotrypa ? barrandei (Nicholson).

Amplexopora Canadensis Foord. See Batostoma canadense (Foord).

Amplexopora cingulata Ulrich.

1882. Amplexopora cingulata. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 254, pl. xi, 5–5*c*.

1889. Amplexopora cingulata. Miller, North American Geol. Pal., fig. 449 (p. 292).

1890. Amplexopora cingulata. Ulrich, Geol. Surv. Illinois, VIII, fig. 3*c* (p. 308), fig. 4*c* (p. 309).

1894. Amplexopora cingulata. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 193.

Cincinnati (Lorraine): McKinney's Station and Boyle County, Kentucky; Cincinnati, Ohio.

Amplexopora ? discoidea (Nicholson).

1871. Chætetes discoideus. James, Catal. Foss. Cincinnati group. (Not defined, only named.)

1874. Chætetes discoideus. Nicholson, Quar. Jour. Geol. Soc. London, XXX, p. 511, pl. xxx, 4–4*d*.

1875. Chætetes discoideus. Nicholson, Pal. Ohio, II, p. 206, pl. xxi, 15–15*c*.

1875. Chætetes discoideus. Nicholson, Pal. Province Ontario, pp. 10, 32.

1876. Chætetes discoideus. Nicholson, Ann. Mag. Nat. Hist., ser. 4, XVIII, p. 88, pl. v, 7, 7*a*.

1881. Monticulipora (Monotrypa) discoidea. Nicholson, Genus Monticulipora, p. 193, pl. iv, 3–3*f*.

1882. Amplexopora discoidea. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 255.

1883. Leptotrypa discoidea. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 158.

1883. Amplexopora discoidea. Foord, Contr. Micro-Pal. Cambro-Sil., p. 17.

1883. Monticulipora discoidea. Hall, Twelfth Ann. Rep. Indiana Geol. Nat. Hist., p. 247, pl. x, 4, 5.

1888. Monticulipora discoidea. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 163.

1894. Monticulipora discoidea. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 178.

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

Trenton: Ottawa (Foord) and Weston (Nicholson), Canada.

Obs. The forms from Canada identified as Amplexopora discoidea by Nicholson and by Foord may be specifically distinct.

Amplexopora filiosa (D'Orbigny).

1850. Monticulipora filiasa. D'Orbigny, Prodr. de Pal., I, p. 25.

1851. Chætetes filiasa. Milne-Edwards and Haime, Pol. Foss. Terr. Pal., p. 261.

1860. Monticulipora filiosa. Milne-Edwards, Hist. Nat. des Corall., III, p. 274.

1875. Chætetes filiasa (?). Nicholson, Pal. Ohio, II, p. 206.

1883. Monotrypa (?) filiasa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 163.

1888. Monticulipora filiasa. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 162.

1890. Leptotrypa filiosa. Ulrich, Geol. Surv. Illinois, VIII, p. 456, pl. xxxvi, 7, 7*a*.

1893. Monticulipora filiasa. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XV, p. 158.

Amplexopora filiosa (D'Orbigny)—Continued.

1896. Monticulipora subcylindrica (James, U. P., *mss.*). J. F. James, Jour Cincinnati Soc. Nat. Hist., XVIII, p. 123, fig. 13*a–c*.

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity; Maury County, Tennessee. Trenton: Calhoun County, Illinois (Ulrich).

Obs. The form from Calhoun County, Illinois, identified as above, is probably specifically distinct.

Amplexopora moniliformis Ulrich. See Heterotrypa? moniliformis (Nicholson).

Amplexopora petasiformis (Nicholson).

1878. Chætetes petropolitanus. James, Paleontologist, No. 2, p. 11.

1881. Monticulipora (Monotrypa) petasiformis. Nicholson, Genus Monticulipora, p. 190, fig. 40.

1882. Monotrypa petasiformis. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 256.

1883. Monotrypa? petasiformis. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 163.

1888. Monticulipora petasiformis. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 168.

1894. Monticulipora petasiformis. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 186.

Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

Amplexopora petasiformis–welchi (James).

1882. Monticulipora (Monotrypa) welchi. James, Paleontologist, No. 6, p. 50. ibid., No. 7, pl. i, 4–4*c*, 1883.

1888. Monticulipora petasiformis var. welchi. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 169.

1894. Monticulipora petasiformis var. welchi. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 187.

Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

Amplexopora pustulosa Ulrich.

1890. Amplexopora pustulosa. Ulrich, Geol. Surv. Illinois, VIII, p. 451, pl. xxxvi, 3–3*c*.

1895. Monticulipora pustulosa. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 72.

Cincinnati (Richmond): Hanover and Clarksville, Ohio.

Amplexopora robusta Ulrich.

1883. Amplexopora robusta. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 82, pl. i, 1–1*b*.

1889. Amplexopora robusta. Miller, North American Geol. Pal., fig. 450 (p. 292).

1890. Amplexopora robusta. Ulrich, Geol. Surv. Illinois, VIII, fig. 7*d* (p. 318).

Cincinnati (Lorraine): Cincinnati, Ohio; Boyle County, Kentucky.

Amplexopora septosa (Ulrich).

1879. Atactopora septosa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 125, pl. xii, 7–7*c*.

1882. Amplexopora septosa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 255.

1888. Monticulipora septosa. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 180.

1894. Monticulipora septosa. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 203.

Cincinnati (Utica and Lorraine): Covington and Newport, Kentucky; Cincinnati, Ohio.

Amplexopora superba Foord. See Batostoma superbum (Foord).

Amplexopora superba Ulrich (not Foord). See Batostoma minnesotense Ulrich.

Amplexopora winchelli Ulrich. See Batostoma winchelli (Ulrich).

Anastomopora Simpson. See Reteporidra.

Anastomopora cinctuta Simpson. See Reteporidra cinctuta (Hall).

ANISOTRYPA Ulrich. Genotype: Anisotrypa symmetrica Ulrich.

1883. Anisotrypa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 275.
1889. Anisotrypa. Miller, North American Geol. Pal., p. 292.
1890. Anisotrypa. Ulrich, Geol. Surv. Illinois, VIII, pp. 376, 447.
1896. Anisotrypa. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 277.

Anisotrypa elegantula Ulrich. See Rhombopora elegantula (Ulrich).

Anisotrypa fistulosa Ulrich.

1890. Anisotrypa fistulosa. Ulrich, Geol. Surv. Illinois, VIII, p. 448, pl. lxxii, 6–6*c*.
Ste. Genevieve: Pella, Iowa.

Anisotrypa ramulosa Ulrich.

1890. Anisotrypa ramulosa. Ulrich, Geol. Surv. Illinois, VIII, p. 449, pl. lxxii, 7–7*a*.
Ste. Genevieve: Pella, Iowa.

Anisotrypa solida Ulrich.

1890. Anisotrypa solida. Ulrich, Geol. Surv. Illinois, VIII, p. 449, pl. lxxii, 9–9*c*.
1894. Anisotrypa solida. Keyes, Missouri Geol. Surv., V, p. 16.
Chester: Sloans Valley, Kentucky; Chester, Illinois.

Anisotrypa symmetrica Ulrich.

1883. Anisotrypa symmetrica. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 276, pl. xiii, 5–5*c*.
1890. Anisotrypa symmetrica. Ulrich, Geol. Surv. Illinois, VIII, p. 448, pl. lxxii, 5.
Chester: Grayson Springs and Sloans Valley, Kentucky; Chester, Illinois.

ANOLOTICHIA Ulrich. Genotype: Anolotichia ponderosa Ulrich.

1890. Anolotichia. Ulrich, Geol. Surv. Illinois, VIII, pp. 381, 473.
1893. Anolotichia. Ulrich, Geol. Minnesota, III, p. 326.
1896. Anolotichia. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 268.

Anolotichia impolita (Ulrich).

1886. Crepipora impolita. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Surv. Minnesota, p. 77.
1893. Anolotichia impolita. Ulrich, Geol. Minnesota, III, p. 327, pl. xxviii, 15–20.
1896. Anolotichia impolita. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 437A–C (p. 268).
Trenton (Stones River): Minneapolis, St. Paul, Chatfield, Cannon Falls, Lanesboro, and Fountain, Minnesota.

Anolotichia ponderosa Ulrich.

1890. Anolotichia ponderosa. Ulrich, Geol. Surv. Illinois, VIII, p. 473, pl. xli, 3–3*d*, fig. 8*c* (p. 320).
1896. Anolotichia ponderosa. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 437D (p. 268).
Cincinnati (Richmond): Wilmington, Illinois.

Arcanopora Vine. See Cystodictya Ulrich.

ARCHIMEDES Owen. Genotype: Archimedes wortheni (Hall).

1842. Archimedes. (Le Seuer) Owen, American Jour. Sci., XLIII, p. 19.
1857. Archimedes. Hall, Proc. American Assoc. Adv. Sci., X, p. 176.
1858. Archimedes. Hall, Pal. Iowa, p. 651.
1882. Archimedes. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 150.
1883. Archimedes. Claypole, Quar. Jour. Geol. Soc. London, XXXIX, p. 31.
1885. Archimedes. Hall, Rep. State Geologist New York for the year 1884, p. 37.
1885. Archimedes. Waagen and Pichl, Pal. Indica, Ser. XIII, p. 774.
1886. Archimedes. Ulrich, Contr. American Pal., I, p. 5.
1889. Archimedes. Miller, North American Geol. Pal., p. 292.
1890. Archimedes. Ulrich, Geol. Surv. Illinois, VIII, pp. 396, 565.
1895. Archimedes. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, p. 726; Forty-fourth Ann. Rep. New York State Museum, p. 920.
1896. Archimedes. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 282.
1897. Archimedes. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 519, 522.
1850. Archimedipora. D'Orbigny, Prodr. de Pal., I, p. 102.

Archimedes communis Ulrich.

1890. Archimedes communis. Ulrich, Geol. Surv. Illinois, VIII, p. 573, pl. lxiii› 1–1*d*.
Chester: Sloans Valley, Kentucky.

Archimedes compactus Ulrich.

1890. Archimedes compactus. Ulrich, Geol. Surv. Illinois, VIII, p. 572, pl. lxiii, 2–2*b*, 2*d* (not 2*c*).
Chester: Sloans Valley, Kentucky.

Archimedes distans Ulrich.

1890. Archimedes distans. Ulrich, Geol. Surv. Illinois, VIII, p. 578, pl. lxiii, 9–9*b*.
Chester: Chester, Illinois; Sloans Valley, Kentucky.

Archimedes grandis Ulrich.

1890. Archimedes grandis. Ulrich, Geol. Surv. Illinois, VIII, p. 569, pl. lxiii, 10.
Keokuk: Jersey County, Illinois.

Archimedes intermedius Ulrich.

1890. Archimedes intermedius. Ulrich, Geol. Surv. Illinois, VIII, p. 574, pl. lxiii, 2*c*.
Chester: Chester, Illinois; Sloans Valley, Kentucky.

Archimedes invaginatus Ulrich.

1890. Archimedes invaginatus. Ulrich, Geol. Surv. Illinois, VIII, p. 575, pl. lxiii, 11*a*, 11*c*.
Chester: Chester, Illinois.

Archimedes laxa White (not Hall). See Archimedes owenanus (Hall).

Archimedes laxus (Hall).

1857. Fenestella (Archimedes) laxa. Hall, Proc. American Assoc. Adv. Sci., X, p. 178.
1890. Archimedes laxus. Ulrich, Geol. Surv. Illinois, VIII, p. 580, pl. lxiii, 15, 15*a*.
1894. Archimedes laxus. Keyes, Missouri Geol. Surv., V, p. 27.
1883. Helicopora archimediformis. Claypole, Quar. Jour. Geol. Soc. London, XXXIX, p. 34, pl. iv, 3, 4.

Archimedes laxus (Hall)—Continued.

1897. Helicopora archimediformis. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 70, 3, 4 (p. 518).
Chester: Chester, Illinois; Litchfield, Kentucky.

Archimedes meekanus (Hall).

1857. Fenestella (Archimedes) Meekana. Hall, Proc. American Assoc. Adv. Sci., X, p. 178.

1890. Archimedes meekanus. Ulrich, Geol. Surv. Illinois, VIII, p. 578, pl. lxiii, 4.
Chester: Chester, Illinois; Sloans Valley and Grayson Springs, Kentucky.

Archimedes negligens Ulrich.

1890. Archimedes negligens. Ulrich, Geol. Surv. Illinois, VIII, p. 569, pl. lxiii, 7, *7a*.

Keokuk: Keokuk and Bentonsport, Iowa.

Archimedes owenanus (Hall).

1857. Fenestella (Archimedes) Owenana. Hall, Proc. American Assoc. Adv. Sci., X, p. 178.

1890. Archimedes owenanus. Ulrich, Geol. Surv. Illinois, VIII, p. 570, pl. lxiii, 6–*6c*.

1894. Archimedes owenanus. Keyes, Missouri Geol. Surv., V, p. 26, pl. xxxiii, 2.

1882. Archimedes laxa. White, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 361, pl. xli, 7.

Keokuk: Keokuk, Iowa; Appanoosa, near Quincy, Illinois; St. Francisville, Missouri.

Archimedes perminimus Ulrich.

1890. Archimedes perminimus. Ulrich, Geol. Surv. Illinois, VIII, p. 572, pl. lxiii, 13, 11 (in part).
Chester: Chester, Illinois.

Archimedes proutanus Ulrich.

1890. Archimedes proutanus. Ulrich, Geol. Surv. Illinois, VIII, p. 576, pl. lxiii, 3–*3c*, 11, *11b*.
Chester: Sloans Valley, Kentucky; Chester, Illinois.

Archimedes reversa Hall. See Archimedes wortheni Hall.

Archimedes sublaxus Ulrich.

1890. Archimedes sublaxus. Ulrich, Geol. Surv. Illinois, VIII, p. 579, pl. lxiii, 14.
Chester: Chester, Illinois.

Archimedes swallovanus (Hall).

1857. Fenestella (Archimedes) Swallovana. Hall, Proc. American Assoc. Adv Sci., X, p. 178.

1890. Archimedes swallovanus. Ulrich, Geol. Surv. Illinois, VIII, p. 574, pl. lxiii, 12–*12d*.

1894. Archimedes swallovanus. Keyes, Missouri Geol. Surv., V, p. 26.
Chester: Chester and Kaskaskia, Illinois; Crittenden County, Kentucky.

Archimedes terebriformis Ulrich.

1890. Archimedes terebriformis. Ulrich, Geol. Surv. Illinois, VIII, p. 575, pl. lxiii, 5–*5c*.
Chester: Chester, Illinois; Sloans Valley and Grayson Springs, Kentucky.

Archimedes wortheni (Hall).

1852. Retepora archimedes. Owen, Rep. Geol. Surv. Wisconsin, Iowa, and Minnesota, pl. iv, 1.

Archimedes wortheni (Hall)—Continued.

1881. Retepora Archimedes. Quenstedt, Roehren- und Sternkorallen, p. 174, pl. cl. 4–10.
1857. Fenestella (Archimedes) Wortheni. Hall, Proc. American Assoc. Adv. Sci., X, p. 178.
1858. Archimedes Wortheni. Hall, Pal. Iowa, p. 651, pl. xxii, 3, 4*a*, *b*, 5*a*, *b*.
1889. Archimedes wortheni. Miller, North American Geol. Pal., fig 452 (p. 292).
1890. Archimedes wortheni. Ulrich, Geol. Surv. Illinois, VIII, p. 571, pl. lxiii, 8, 8*a*.
1894. Archimedes wortheni. Keyes, Missouri Geol. Surv., V, p. 26, pl. xxxiii, 1.
1896. Archimedes Wortheni. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 468 (p. 282).
1897. Archimedes Wortheni. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 71, 72 (p. 519).
1858. Archimedes reversa. Hall, Pal. Iowa, p. 652, pl. xxii, 2.
1889. Archimedes reversus. Miller, North American Geol. Pal., fig. 451 (p. 292).
Warsaw: Warsaw, Illinois.

Archimedipora D'Orbigny. See Archimedes Owen.

Archimedipora Simpson (not D'Orbigny).

1895. Archimediopora. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 701, 723, 726; Forty-seventh Ann. Rep. New York State Mus., pp. 895, 917, 920.
1897. Archimedipora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 522.
Obs. This genus as defined by Mr. Simpson is imaginary. The author cites no species. We know of no species of Archimedes with more than two rows of apertures on a branch.

ARTHROCLEMA Billings. Genotype: Arthroclema pulchellum Billings.

1862. Arthroclema. Billings, Pal. Foss., I, p. 54.
1882. Arthroclema (in part). Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 151.
1886. Arthroclema. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Surv. Minnesota, p. 60.
1888. Arthroclema. Ulrich, American Geologist, I, p. 232.
1889. Arthroclema. Miller, North American Geol. Pal., p. 293.
1890. Arthroclema. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 192.
1890. Arthroclema. Ulrich, Geol. Surv. Illinois, VIII, p. 400.
1893. Arthroclema. Ulrich, Geol. Minn., III, p. 197.
1896. Arthroclema. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 281.
1897. Arthroclema. Simpson, Fourteenth Ann. Rep. State Geologist, New York, for the year 1894, p. 546.

Arthroclema angulare Ulrich.

1889. Arthroclema angulare. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 45.
1890. Arthroclema angulare. Ulrich, Geol. Surv. Illinois, VIII, p. 641, pl. xxix, 6–6*b*.
1895. Arthroclema angulare. Whiteaves, Pal. Foss., III, p. 117.
Cincinnati (Richmond): Wilmington, Illinois; Stony Mountain, Manitoba.
Obs. See Helopora imbricata Ulrich.

Arthroclema armatum Ulrich.

1890. Arthroclema armatum. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 194, fig. 19*a–d* (not *e–h*=Arthroclema pulchellum Billings).
1893. Arthroclema armatum. Ulrich, Geol. Minnesota, III, p. 201, pl. ii, 8–11, 25, 28–33, pl. iii, 7.

Arthroclema armatum Ulrich—Continued.

1897. Arthroclema armatum. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 111 (p. 547).

Trenton: Cannon Falls and St. Paul, Minnesota.

Arthroclema billingsi Ulrich.

1890. Arthroclema billingsi. Ulrich, Geol. Surv. Illinois, VIII, p. 642.

1893. Arthroclema billingsi. Ulrich, Geol. Minnesota, III, p. 197, pl. ii, 7.

1897. Arthroclema Billingsi. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 105 (p. 547).

Trenton: Ottawa, Canada.

Arthroclema cornutum Ulrich.

1890. Arthroclema cornutum. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 193, fig. 18.

1893. Arthroclema cornutum. Ulrich, Geol. Minnesota, III, p. 200, pl. ii, 16–21, 23, pl. iii, 34.

1897. Arthroclema cornutum. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 106–108, 112 (p. 547).

Trenton (Black River): Minneapolis, Minnesota.

Arthroclema pulchellum Billings.

1862. Arthroclema pulchellum. Billings, Pal. Foss., I, p. 54, fig. 60.

1890. Arthroclema pulchellum. Ulrich, Geol. Surv. Illinois, VIII, p. 642, pl. xxix, 6*c*.

1893. Arthroclema pulchellum. Ulrich, Geol. Minnesota, III, pl. ii, 12–15.

1890. Arthroclema armatum (in part). Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 194, fig. 19 *e–h* (not 19 *a–d*).

Trenton: Ottawa City and Peterboro, Canada.

Arthroclema spiniforme Ulrich. See Helopora spiniformis (Ulrich).

Arthroclema striatum Ulrich.

1893. Arthroclema striatum. Ulrich, Geol. Minn., III, p. 198, pl. ii, 22, 24, pl. iii, 28–33.

1897. Arthroclema striatum. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 109, 110 (p. 547).

Trenton (Black River): Minneapolis and St. Paul, Minnesota.

Arthronema Ulrich (preoccupied). See Arthrostylus Ulrich.

Arthronema curtum Ulrich. See Arthrostylus curtus (Ulrich).

Arthronema tenue Ulrich. See Arthrostylus tenuis (James).

ARTHROPORA Ulrich. Genotype: Ptilodictya (Stictopora) Shafferi Meek.

1882. Arthropora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, pp. 152, 167.

1889. Arthropora. Miller, North American Geol. Pal., p. 293.

1890. Arthropora. Ulrich, Geol. Surv. Illinois, VIII, p. 393.

1893. Arthropora. Ulrich, Geol. Minnesota, III, p. 176.

1896. Arthropora. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 279.

1897. Arthropora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 605.

Arthropora bifurcata Ulrich.

1893. Arthropora bifurcata. Ulrich, Geol. Minnesota, III, p. 178, pl. xiv, 22–25.

Trenton (Black River): St. Paul and Cannon Falls, Minnesota.

Arthropora reversa Ulrich.

1893. Arthropora reversa. Ulrich, Geol. Minnesota, III, p. 178, pl. xiv, 26.

Trenton: St. Paul, Minnesota.

Arthropora shafferi (Meek).

1872. Ptilodictya (Stictopora) Shafferi. Meek, Proc. Acad. Nat. Sci. Philadelphia, p. 317.
1873. Ptilodictya (Stictopora) Shafferi. Meek, Pal. Ohio, I, p. 69, pl. v. 1*a–c*.
1875. Ptilodictya Shafferi. Nicholson, Pal. Province Ontario, p. 33, fig. 4.
1882. Arthropora shafferi. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 167, pl. vii, 10, 10*a*.
1889. Arthropora shafferi. Miller, North American Geol. Pal., figs. 453–455 (p. 293).
1890. Arthropora shafferi. Ulrich, Geol. Surv. Illinois, VIII, fig. 3*e* (p. 308).
1879. Crateripora erecta. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 29, pl. vii, 29, 29*a*.
1879. Stromatopora (?) lichenoides. James, Paleontologist, No. 3, p. 18.

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

Obs. The names Crateripora erecta Ulrich and Stromatopora (?) lichenoides James were applied to the articulating basal socket of this species before its true nature was understood.

Arthropora shafferi-cleavelandi (James).

1881. Ptilodictya cleavelandi. James, Paleontologist, No. 5, p. 38.
1881. Ptilodictya ? cincinnatiensis. James, Paleontologist, No. 5, p. 39.
1881. Ptilodictya grahami. James, Paleontologist, No. 5, p. 39.
1881. Ptilodictya dubia. James, Paleontologist, No. 5, p. 40.

Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

Arthropora simplex Ulrich.

1886. Arthropora simplex. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Surv. Minnesota, p. 65.
1893. Arthropora simplex. Ulrich, Geol. Minnesota, III, p. 177, pl. xiv, 12–21.

Trenton (Stones River and Black River): Minneapolis, St. Paul, and Fountain, Minnesota; Decorah, Iowa.

ARTHROSTYLUS Ulrich. Genotype: Helopora tenuis James.

1882. Arthronema (preoccupied). Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, pp. 151, 160.
1888. Arthrostylus. Ulrich, American Geologist, I, p. 230.
1889. Arthrostylus. Miller, North American Geol. Pal., p. 293.
1890. Arthrostylus. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 188.
1890. Arthrostylus. Ulrich, Geol. Surv. Illinois, VIII, p. 400.
1893. Arthrostylus. Ulrich, Geol. Minnesota, III, p. 187.
1896. Arthrostylus. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 280.
1897. Arthrostylus. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 527.

Arthrostylus conjunctus Ulrich.

1890. Arthrostylus conjunctus. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 189, fig. 14.
1893. Arthrostylus conjunctus. Ulrich, Geol. Minnesota, III, p. 188, pl. iii, 13, 14.
1897. Arthrostylus conjunctus. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 78, 79, 79*a* (p. 526).

Trenton (Black River): Fountain, Minnesota.

Arthrostylus curtus (Ulrich).

1882. Arthronema curtum. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 161, pl. vi, 9.
1889. Arthrostylus curtus. Miller, North American Geol. Pal., p. 293.

Cincinnati (Utica): Covington, Kentucky.

Obs. This may be a basal segment of some species of Arthropora.

Arthrostylus obliquus Ulrich.

1890. Arthrostylus obliquus. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 190, figs. 14*c*, *d*.

1893. Arthrostylus obliquus. Ulrich, Geol. Minnesota, III, p. 188, pl. iii, 15, 16.

Trenton (Stones River): Minneapolis, Minnesota.

Arthrostylus tenuis (James).

1878. Helopora tenuis. James, Paleontologist No. 1, p. 3.

1882. Arthronema tenuis. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 160, pl. vi, 8–8*c*.

1893. Arthrostylus tenuis. Ulrich, Geol. Minnesota, III, pl. iii, 16*e*.

Trenton: Covington, Kentucky.

Cincinnati (Utica): Covington and Newport, Kentucky; Cincinnati, Ohio.

ASCODICTYON Nicholson and Etheridge, Jun. Genotype: Ascodictyon stellatum Nicholson and Etheridge, Jun.

1877. Ascodictyon. Nicholson and Etheridge, Jun., Ann. Mag. Nat. Hist., ser. 4, XIX, p. 463.

1882. Ascodictyon. Vine, Quar. Jour. Geol. Soc. London, XXXVIII, p. 52.

1889. Ascodictyon. Miller, North American Geol. Pal., p. 293.

1890. Ascodictyon. Ulrich, Geol. Surv. Illinois, VIII, p. 367.

1897. Ascodictyon. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 603.

Obs. Ascodictyon fusiforme was the first species described, but, judging from the generic description, the authors intended A. stellatum to be the genotype.

Ascodictyon fusiforme Nicholson and Etheridge, Jun.

1877. Ascodictyon fusiforme, Nicholson and Etheridge, Jun., Ann. Mag. Nat. Hist., ser. 4, XIX, p. 463, pl. xix, 7, 8.

Hamilton: Widder, Ontario; Alpena, Michigan.

Ascodictyon stellatum Nicholson and Etheridge, Jun.

1877. Ascodictyon stellatum. Nicholson and Etheridge, Jun., Ann. Mag. Nat. Hist., ser. 4, XIX, p. 464, pl. xix, 1–6.

1881. Ascodictyon stellatum. Vine, Quar. Jour. Geol. Soc. London, XXXVII, p. 618.

1891. Ascodictyon stellatum. Whiteaves, Contr. Canadian Pal., I, p. 213.

1893. Ascodictyon stellatum. Ulrich, Geol. Minnesota, III, p. 113, fig. 8*a*.

1897. Ascodictyon stellatum. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 220 (p. 603).

Hamilton: Widder, Ontario; Eighteenmile Creek, New York.

ASPIDOPORA Ulrich. Genotype: Aspidopora areolata Ulrich.

1882. Aspidopora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 155.

1889. Aspidopora. Miller, North American Geol. Pal., p. 293.

1890. Aspidopora. Ulrich, Geol. Surv. Illinois, VIII, p. 373.

1893. Aspidopora. Ulrich, Geol. Minnesota, III, p. 254.

1897. Aspidopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 584.

Aspidopora areolata Ulrich.

1883. Aspidopora areolata. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 164, pl. vii, 2–2*c*.

1894. Monticulipora arcolata. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 183.

Cincinnati (Utica): Cincinnati, Ohio.

Aspidopora calycula (James).

1871. Lichenalia? calycula. James, Catal. Foss. Cincinnati Group. (Not defined.)

1875. Chætetes? calyculus. James, Introd. Catal. Foss. Cincinnati Group, p. 1.

1881. Monticulipora (Diplotrypa) calycula. Nicholson, Genus Monticulipora, p. 165, pl. iv, 4–4*b*.

1883. Prasopora calycula. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 165.

1888. Monticulipora calycula. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 167.

1894. Monticulipora calycula. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 184.

Trenton: Covington, Kentucky.

Aspidopora eccentrica (James).

1882. Monticulipora (Heterotrypa?) eccentrica. James, Paleontologist, No. 6, p. 48; ibid., No. 7, pl. i, 6, 6*a*.

1888. Monticulipora eccentrica. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 167, pl. ii, 2*a*–*c*.

1893. Aspidopora eccentrica. Ulrich, Geol. Minnesota, III, p. 255.

1894. Monticulipora eccentrica. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI. p. 185.

Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

Aspidopora elegantula (Ulrich).

1893. Aspidopora elegantula. Ulrich, Geol. Minnesota, III, p. 256, pl. xvii, 13–21.

1897. Aspidopora elegantula. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 162–164 (p. 584).

Trenton: Kenyon and St. Paul, Minnesota.

Aspidopora newberryi (Nicholson).

1875. Chætetes Newberryi. Nicholson, Pal. Ohio, II, p. 212, pl. xxii, 4, 4*a*.

1881. Monticulipora (Prasopora) Newberryi. Nicholson, Genus Monticulipora, p. 212, pl. iv, 1–1*e*.

1883. Prasopora ? newberryi. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 165.

1886. Aspidopora newberryi. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Surv. Minnesota, p. 91.

1888, Monticulipora newberryi. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 164.

1894. Monticulipora newberryi. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 179.

Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

Aspidopora parasitica (Ulrich).

1886. Aspidopora parasitica (in part). Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Surv. Minnesota, p. 90.

1893. Aspidopora parasitica. Ulrich, Geol. Minnesota, III, p. 255, pl. xvii, 26–32.

1894. Aspidopora parasitica. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 180.

Trenton (Stones River and Black River): Minneapolis, St. Paul, and Fountain, Minnesota.

Aspidopora parmula (Foerste).

1887. Prasopora parmula. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 170; ibid., III, 1888, pl. xv, 14.

1895. Aspidopora parmula. Foerste, Geol. Surv. Ohio, VII, p. 600, pl. xxviii, 14.

Clinton: Dayton and Clinton County, Ohio.

Aspidopora parmula-fenestelliformis Foerste.

1895. Aspidopora parmula var. fenestelliformis. Foerste, Geol. Surv. Ohio, VII, p. 600.

Clinton: Dayton, Ohio.

Astroporites Lambe. Genotype: Astroporites ottawaensis Lambe.

1896. Astroporites. Lambe, Canadian Record of Science, VII, p. 1.

Obs.—This genus is founded upon the basal plate of a Lichenocrinoid. Mr. Ulrich, who pointed out this fact to us, has specimens which clearly indicate the nature of this fossil.

Astroporites ottawaensis Lambe. Not a bryozoan.

1896. Astroporites Ottawaensis. Lambe, Canadian Record of Science, VII, p. 1, pl. i, 1–3.

Trenton: Hull, near Ottawa, Canada.

ATACTOPORA Ulrich. Genotype: Atactopora hirsuta Ulrich.

1879. Atactopora (in part). Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 119.
1882. Atactopora (in part). Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 154.
1883. Atactopora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 245.
1889. Atactopora. Miller, North American Geol. Pal., p. 293.
1890. Atactopora. Ulrich, Geol. Surv. Illinois, VIII, p. 377.
1896. Atactopora. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 278.
1897. Atactopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 563.

Atactopora hirsuta Ulrich.

1879. Atactopora hirsuta. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 120, pl. xii, 3–3*b*.
1883. Atactopora hirsuta. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 245, pl. xii, 1, 1*a*.

Cincinnati (Utica and Lorraine): Covington and Newport, Kentucky; Cincinnati, Ohio.

Atactopora maculata Ulrich.

1879. Atactopora maculata. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 121, pl. xii, 2–2*e*.
1883. Atactopora maculata. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI., p. 245, pl. xii, 2, 2*a*.
1896. Atactopora maculata. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 466 (p. 278).

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

Atactopora multigranosa Ulrich. See Atactoporella multigranosa (Ulrich).

Atactopora mundula Ulrich. See Atactoporella mundula (Ulrich).

Atactopora septosa Ulrich. See Amplexopora septosa (Ulrich).

Atactopora subramosa Ulrich. See Heterotrypa subramosa (Ulrich).

Atactopora tenella Ulrich. See Atactoporella tenella (Ulrich).

ATACTOPORELLA Ulrich. Genotype: Atactoporella typicalis Ulrich.

1879. Atactopora (in part). Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 119.
1881. Peronopora (in part). Nicholson, Genus Monticulipora, p. 215.
1883. Atactoporella. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 247.
1889. Atactoporella. Miller, North American Geol. Pal., p. 293.
1890. Atactoporella. Ulrich, Geol. Surv. Illinois, VIII, p. 370.
1893. Atactoporella. Ulrich, Geol. Minnesota, III, p. 222.

ATACTOPORELLA Ulrich—Continued.

1896. Atactoporella. Ulrich, Zittel's Textb. Pal. (Engl. ed,), p. 272.
1897. Atactoporella. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 585.

Atactoporella? crassa Ulrich.

1893. Atactoporella crassa. Ulrich, Geol. Minnesota, III, p. 225, pl. xv, 18–21.
Trenton: St. Paul and Cannon Falls, Minnesota.

Atactoporella insueta Ulrich.

1893. Atactoporella insueta. Ulrich, Geol. Minnesota, III, p. 224, pl. xv, 13–15, pl. xviii, 5–8.
Trenton (Black River): Minneapolis, St. Paul, and Fountain, Minnesota.

Atactoporella multigranosa (Ulrich).

1879. Atactopora multigranosa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 122, pl. xii, 1, 1*a*.
1883. Atactoporella multigranosa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 254, pl. xii, 8, 8*a*.
1895. Atactoporella multigranosa. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 80.
Cincinnati (Lorraine): Hamilton, Morrow, and Cincinnati, Ohio.

Atactoporella mundula (Ulrich).

1879. Atactopora mundula. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 123, pl. xii, 4, 4*a*.
1883. Atactoporella mundula. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 252, pl. xii, 6, 6*a*.
1895. Atactoporella mundula. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 80.
Cincinnati (Lorraine): Covington and Newport, Kentucky; Cincinnati, Ohio.

Atactoporella newportensis Ulrich.

1883. Atactoporella newportensis. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 250, pl. xii, 4–4b.
1888. Monticulipora newportensis. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 183.
1889. Atactoporella newportensis. Miller, North American Geol. Pal., fig. 456 (p. 294).
1894. Monticulipora newportensis. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 206.
Cincinnati (Utica): Newport, Kentucky.

Atactoporella ortoni (Nicholson).

1874. Chætetes Ortoni. Nicholson, Quar. Jour. Geol. Soc. London, XXX, p. 513, pl. xxix, 15–15*b*.
1875. Chætetes Ortoni. Nicholson, Pal. Ohio, II, p. 211, pl. xxii, 3–3*b*.
1881. Monticulipora (Peronopora?) Ortoni. Nicholson, Genus Monticulipora, p. 228, pl. iii, 4–4*d*.
1883. Atactoporella ortoni. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 256, pl. xii, 7, 7*a*.
1888. Monticulipora ortoni. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 22.
1895. Monticulipora ortoni. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 79.
Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

Atactoporella ramosa Ulrich.

1893. Atactoporella ramosa. Ulrich, Geol. Minnesota, III, p. 226, pl. xx, 22–27.

Trenton (Black River): Cannon Falls, Minnesota.

Atactoporella schucherti Ulrich.

1883. Atactoporella schucherti. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 251, pl. xii, 5–5*b*.

1895. Atactoporella schucherti. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 80.

Cincinnati (Richmond): Oxford, Waynesville, and Oregonia, Ohio; Richmond and Versailles, Indiana.

Atactoporella tenella (Ulrich).

1879. Atactopora tenella. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 123, pl. xii, 5, 5*a*.

1883. Atactoporella tenella. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 246.

1895. Atactoporella tenella. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 80.

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

Atactoporella typicalis Ulrich.

1883. Atactoporella typicalis. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 248, pl. xii, 3–3*d*.

1895. Atactoporella typicalis. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 80.

1896. Atactoporella typicalis. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 450, (p. 272).

1897. Atactoporella typicalis. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 165–167 (p. 585).

Cincinnati (Utica): Covington and Newport, Kentucky; Cincinnati, Ohio.

Atactoporella typicalis-præcipta Ulrich.

1893. Atactoporella typicalis var. præcipta. Ulrich, Geol. Minnesota, III, p. 223, pl. xv, 16, 17, pl. xviii, 1–4.

Trenton (Black River): Minneapolis, St. Paul, and Fountain, Minnesota.

Aulopora Goldfuss. Considered at present a genus of corals.

Aulopora arachnoidea Hall. See Stomatopora arachnoidea (Hall).

Aulopora ? Canadensis Nicholson. See Hederella canadensis (Nicholson).

Aulopora filiformis Billings. See Hederella filiformis (Billings).

Aulopora frondosa James. See Proboscina frondosa (Nicholson).

BACTROPORA Hall and Simpson. Genotype: Trematopora ? granistriata Hall.

1887. Bactropora. Hall and Simpson, Pal. New York, VI, p. xv.

1889. Bactropora. Miller, North American Geol. Pal., p. 294.

1890. Bactropora. Ulrich, Geol. Surv. Illinois, VIII, pp. 402, 662.

1896. Bactropora. Ulrich, Zittel's Texb. Pal., (Engl. ed.), p. 281.

1897. Bactropora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 553.

Bactropora curvata Hall and Simpson.

1887. Bactropora curvata. Hall and Simpson, Pal. New York, VI, p. 194, pl. xvi, 14–16.

1897. Bactropora curvata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xvi, 13, 14.

Hamilton: Canandaigua Lake, New York.

Bactropora granistriata (Hall).

1883. Trematopora ? granistriata. Hall, Trans. Albany Institute, X, p. 182 (abstract, 1881, p. 182).
1884. Trematopora ? granistriata. Hall, Rep. State Geologist New York for the year 1883, p. 13.
1887. Bactropora granistriata. Hall and Simpson, Pal. New York, VI, p. 193, pl. lxvi, 20–22.
Hamilton: Darien Center, New York

Bactropora simplex Ulrich.

1890. Bactropora simplex. Ulrich, Geol. Surv. Illinois, VIII, p. 663, pl. lxx, 14–14*b*, pl. lxxi, 6, 6*a*.
1894. Bactropora simplex. Keyes, Missouri Geol. Surv., V, p. 35.
Keokuk: Keokuk, Iowa; Nauvoo and Warsaw, Illinois; Clark County, Missouri.

BATOSTOMA Ulrich. Genotype: Monticulipora (Heterotrypa) implicata Nicholson.

1882. Batostoma. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 154.
1883. Batostoma. Foord, Contr. Micro-Pal. Cambro-Sil., p. 17.
1889. Batostoma. Miller, North American Geol. Pal., p. 294.
1890. Batostoma. Ulrich, Geol. Surv. Illinois, VIII, pp. 379, 459.
1893. Batostoma. Ulrich, Geol. Minnesota, III, p. 288.
1896. Batostoma. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 275.
1897. Batostoma. Simpson, Fourteenth Ann. Rep. State Geologist, New York, for the year 1894, p. 588.

Batostoma canadense (Foord).

1883. Amplexopora Canadensis. Foord, Contr. Micro-Pal. Cambro-Sil., p. 17, pl. iv, 2–2*d*.
1893. Batostoma Canadensis. Ulrich, Geol. Minnesota, III, p. 317.
Trenton (Black River): St. Joseph Island, Lake Huron.
Trenton: Joliette, Quebec.

Batostoma ? decipiens Ulrich.

1893. Batostoma ? decipiens. Ulrich, Geol. Minnesota, III, p. 298, pl. xxvii, 16–19.
Trenton (Stones River and Black River): Minneapolis, Minnesota.

Batostoma fertile Ulrich.

1886. Batostoma fertilis. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Surv. Minnesota, p. 92.
1893. Batostoma fertile. Ulrich, Geol. Minnesota, III, p. 290, pl. xxv, 1–11.
1896. Batostoma fertile. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 459 A (p. 275).
Trenton (Stones River): Minneapolis and St. Paul, Minnesota.

Batostoma fertile-circulare Ulrich.

1893. Batostoma fertile var. circulare. Ulrich, Geol. Minnesota, III, p. 291, pl. xxv, 8, 9.
1896. Batostoma fertile. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 459 B (p. 275).
Trenton (Stones River): Minneapolis and St. Paul, Minnesota.

Batostoma humile Ulrich.

1893. Batostoma humile. Ulrich, Geol. Minnesota, III, p. 294, pl. xxv, 29–36.
Trenton: St. Paul and Cannon Falls, Minnesota; Decorah, Iowa.

Batostoma imperfectum Ulrich. See Hemiphragma imperfectum (Ulrich).

Batostoma implicatum (Nicholson).

1880. Chætetes implicata. Ulrich, Catal. Foss. Cincinnati Group, p. 12. (Not defined.)
1881. Monticulipora (Heterotrypa) implicata. Nicholson, Genus Monticulipora, p. 147, pl. ii, 7–7*e*.
1882. Batostoma implicatum. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 256.
1894. Monticulipora implicatum. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 198.
1875. Alecto nexilis. James, Intr. Catal. Foss. Cincinnati Group, p. 3.
1878. Ceramopora ? irregularis, James, Paleontologist, No. 1, p. 5.
Cincinnati (Utica): Cincinnati, Ohio, and vicinity.
Obs. Alecto nexilis James was founded upon specimens of this species showing the large perforated acanthopores which Mr. James mistook for the cell apertures of his species.

Batostoma irrasa Ulrich. See Hemiphragma irrasum (Ulrich).

Batostoma jamesi (Nicholson).

1874. Chætetes Jamesi. Nicholson, Quar. Jour. Geol. Soc. London, XXX, p. 506, pl. xxix, 10–10*b*.
1875. Chætetes Jamesi. Nicholson, Pal. Ohio, II, p. 200, pl. xxi, 11, 11*a*.
1876. Chætetes Jamesi. Nicholson, Ann. Mag. Nat. Hist., ser. 4, XVIII, p. 89, pl. v, 5.
1880. Monticulipora Jamesi. Nicholson, Ann. Mag. Nat. Hist., ser. 5, VI, p. 415, fig. 3A, B, fig. 4.
1881. Monticulipora (Heterotrypa) Jamesi. Nicholson, Genus Monticulipora, p. 143, figs. 25, 26.
1882. Batostoma jamesi. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 256; ibid., VI, 1883, p. 83.
1883. Monticulipora Jamesi. (Van Cleve), Hall, Twelfth Ann. Rep. Indiana Geol. Nat. Hist., p. 248, pl. xi, 8.
1888. Monticulipora jamesi. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 176.
1889. Batostoma jamesi. Miller, North American Geol. Pal., fig. 457 (p. 294).
1894. Monticulipora jamesi. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 197.
Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

Batostoma magnoporum Ulrich.

1893. Batostoma magnopora. Ulrich, Geol. Minnesota, III, p. 291, pl. xxv, 12–15.
Trenton (Black River): Minneapolis and St. Paul, Minnesota.

Batostoma manitobense Ulrich.

1889. Batostoma Manitobense. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 33, pl. ix, 3–3*c*.
1895. Batostoma Manitobense. Whiteaves, Paleozoic Foss., III, p. 117.
Cincinnati (Richmond): Stony Mountain, Manitoba.

Batostoma minnesotense Ulrich.

1886. Amplexopora superba (not of Foord). Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Surv. Minnesota, p. 92.
1893. Batostoma minnesotense. Ulrich, Geol. Minnesota, III, p. 297, pl. xxvi, 38–40, pl. xxvii, 9–15.

Batostoma minnesotense Ulrich—Continued.

1897. Batostoma Minnesotense. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 173 (p. 588).

Trenton (Black River): Minneapolis and St. Paul, Minnesota.

Batostoma montuosum Ulrich.

1893. Batostoma montuosum. Ulrich, Geol. Minnesota, III, p. 293, pl. xxv, 26–28.

Trenton (Black River): Cannon Falls, Minnesota.

Batostoma Ottawaense Foord. See Hemiphragma ottawense (Foord).

Batostoma ? rugosum (Whitfield).

1880. Fistulipora rugosa. Whitfield, Ann. Rep. Wisconsin Geol. Surv. for the year 1879, p. 60.

1882. Fistulipora rugosa. Whitfield, Geol. Surv. Wisconsin, IV, p. 255, pl. xi, 20, 21.

1889. Batostoma rugosum. Miller, North American Geol. Pal., p. 294.

Cincinnati (Richmond): Delafield, Wisconsin.

Batostoma superbum (Foord).

1883. Amplexopora superba. Foord, Contr. Micro-Pal. Cambro-Sil., p. 16, pl. iv, 1–1*c*.

1893. Batostoma superbum. Ulrich, Geol. Minnesota, III, p. 297.

Trenton: Montreal, Canada.

Batostoma variabile Ulrich. See Batostoma varians (James).

Batostoma varians (James).

1878. Chætetes varians. James, Paleontologist, No. 1, p. 2.

1881. Monticulipora (Chætetes) varians. James, Paleontologist, No. 5, p. 36.

1888. Monticulipora varians. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 177, pl. ii, 4 *a*, *b*.

1894. Monticulipora varians. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 199.

1890. Batostoma variabile. Ulrich, Geol. Surv. Illinois, VIII, p. 460, pl. xxxv, 4–4*e*, 5 (not 5*a*), pl. xxxvi, 1.

1894. Batostoma variabile. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 200.

Cincinnati (Richmond): Blanchester, Clarksville, and other localities in Ohio; Richmond and Versailles, Indiana; Savannah, Illinois; Delafield, Wisconsin.

Batostoma varium Ulrich.

1893. Batostoma varium. Ulrich, Geol. Minnesota, III, p. 292, pl. xxv, 16–25.

1897. Batostoma varium. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 175 (p. 588) (not fig. 176=Eridotrypa mutabilis Ulrich).

Trenton (Black River): Minneapolis and St. Paul, Minnesota.

Batostoma winchelli (Ulrich).

1886. Amplexopora winchelli. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Surv. Minnesota, p. 91.

1893. Batostoma winchelli. Ulrich, Geol. Minnesota, III, p. 295, pl. xxvi, 33–37, pl. xxvii, 1–6.

1897. Batostoma Winchelli, Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 174 (p. 588).

Trenton (Black River): St. Paul and Minneapolis, Minnesota: Goodhue and Fillmore counties, Minnesota.

Batostoma winchelli-nodosum Ulrich.

1893. Batostoma winchelli var. nodosa. Ulrich, Geol. Minnesota, III, p. 295, pl. xxvi, 35.

Trenton (Black River): Minneapolis and St. Paul, Minnesota.

Batostoma winchelli-spinulosum Ulrich.

1893. Batostoma winchelli var. spinulosum. Ulrich, Geol. Minnesota, III, p. 296, pl. xxvii, 7, 8.

1896. Batostoma winchelli var. spinulosum. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 459 C (p. 275).

Trenton (Black River): Minneapolis and St. Paul, Minnesota.

BATOSTOMELLA Ulrich. Genotype: Batostomella spinulosa Ulrich.

1882. Batostomella (in part). Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, pp. 141, 154.

1889. Batostomella. Miller, North American Geol. Pal., p. 294.

1890. Batostomella (in part). Ulrich, Geol. Surv. Illinois, VIII, pp. 375, 432.

1895. Batostomella. Whidborne, Devon. Fauna England (Pal. Soc. Publ.), II, pt. 4, p. 187.

1896. Batostomella. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 277.

1886. Geinitzella. Waagen and Wentzel, Pal. Indica, Ser. XIII, pp. 875, 880.

1896. Geinitzella. Zittel, Textb. Pal. (Engl. ed.), p. 105.

Batostomella abrupta Ulrich.

1890. Batostomella abrupta. Ulrich, Geol. Surv. Illinois, VIII, p. 435, pl. lxxv, 2–2*e*.

Chester: Sloans Valley, Kentucky.

Batostomella annulata Ulrich. See Trematella annulata (Hall).

Batostomella annulifera Ulrich. See Lioclemella annulifera (Whitfield).

Batostomella ? aspera (Hall).

1852. Trematopora aspera. Hall, Pal. New York, II, p. 154, pl. xl A, 10*a–c*.

Niagara: Lockport, New York.

Batostomella gracilis Ulrich. See Bythopora gracilis (Nicholson).

Batostomella granulifera (Hall).

1852. Trematopora granulifera. Hall, Pal. New York, II, p. 154, pl. xl A, 9*a–e*.

*1876. Trematopora granulifera. Hall, Twenty-eighth Ann. Rep. New York State Museum (documentary edition), pl. xi, 6, 7; ibid. (Museum edition, 1879), p. 112, pl. xi, 6, 7.

*1882. Trematopora granulifera. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 233, pl. x, 6, 7.

1890. Rhombopora granulifera. Ulrich, Geol. Surv. Illinois, VIII, p. 647.

Niagara: Lockport, New York; Waldron, Indiana.

Obs. The citations preceded by the (*) refer to the Waldron form, which may be specifically distinct.

Batostomella granulifera Ulrich. See Homotrypella granulifera (Ulrich).

Batostomella interstincta Ulrich.

1890. Batostomella interstincta. Ulrich, Geol. Surv. Illinois, VIII, p. 434, pl. lxxv, 4–4*c*.

Ste. Genevieve: Pella, Iowa.

Batostomella nitidula Ulrich.

1890. Batostomella nitidula. Ulrich, Geol. Surv. Illinois, VIII, p. 436, pl. lxxv. 3–3*b*.
1894. Batostomella nitidula. Keyes, Missouri Geol. Surv., V, p. 14.
Chester: Chester, Illinois; Sloans Valley, Kentucky.

Batostomella obliqua Ulrich. See Eridotrypa ? obliqua (Ulrich).
Batostomella perspinulata Ulrich. See Trematella perspinulata (Hall).
Batostomella simulatrix Ulrich. See Eridotrypa simulatrix (Ulrich).

Batostomella spinulosa Ulrich.

1890. Batostomella spinulosa. Ulrich, Geol. Surv. Illinois, VIII, p. 434, pl. lxxv, 1–1*f*.
1896. Batostomella spinulosa. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 463 (p. 277).
Chester: Sloans Valley, Kentucky; Chester, Illinois.

BERENICEA Lamouroux. Genotype: Berenicea diluviana Lamouroux.

1821. Berenicea (in part). Lamouroux, Expos. Meth. des Genres d. Pol., p. 80
1852. Berenicea. McCoy, Brit. Pal. Foss., p. 44.
1854. Berenicea. D'Orbigny, Pal. Franc. Terr. Cret., V, p. 858.
1854. Berenicea. Haime, Bry. de la Form. Juras., p. 175.
1882. Berenicea. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 149.
1889. Berenicea. Miller, North American Geol. Pal., p. 294.
1890. Berenicea. Ulrich, Geol. Surv. Illinois, VIII, p. 368.
1893. Berenicea. Ulrich, Geol. Minnesota, III, p. 120.
1896. Berenicea. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 261.
1897. Berenicea. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 594.
1840. Rosacilla. F. A. Roemer, Verst. des Norddeutsh. Kreidegeb., p. 19.
Diastopora (not of Lamouroux). D'Orbigny, Busk, and other English authors.
Diastopora (in part). Hincks, Vine, and other authors.
1852. Sagenella. Hall, Pal. New York, II, p. 172.
1889. Sagenella. Miller, North American Geol. Pal., p. 321.
1897. Sagenella. Simpson, Fourteenth Ann. Rept. State Geologist New York for the year 1894, p. 597.
1883. Diastoporella. Vine, Rep. British Ass. Adv. Sci., LII, p. 275.
1887. Diastoporella. Vine, Proc. Yorkshire Geol. Polyt. Soc., IX, p. 190.

Berenicea elegans (Hall).

1876. Sagenella elegans. Hall, Twenty-eighth Ann. Rep. New York State Museum (documentary edition), pl. vii, 12, 13; ibid. (Museum edition, 1879), p. 118, pl. vii, 12, 13.
1882. Sagenella elegans. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 242, pl. vi, 12, 13.
1897. Sagenella elegans. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xx, 4.
Niagara: Waldron, Indiana.

Berenicea ? insueta Dawson.

1883. Berenicea insueta. Dawson, Rep. on Peter Redpath Museum, No. 2, p. 12.
Subcarboniferous: Windsor, Nova Scotia.

Berenicea membranacea (Hall).

1852. Sagenella membranacea. Hall, Pal. New York, II, p. 172, pl. xlE, 6 *a*, *b*.
Niagara: Lockport and Rochester, New York.

Berenicea minnesotensis Ulrich.

1886. Berenicea minnesotensis. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Surv. Minnesota, p. 58.

1893. Berenicea minnesotensis. Ulrich, Geol. Minnesota, III, p. 120, pl. i, 25, 27, 29, pl. ii, 1.

1897. Berenicea Minnesotensis. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 197, 198 (p. 595).

Trenton (Stones River and Black River): Minneapolis and St. Paul, Minnesota.

Berenicea primitiva Ulrich.

1882. Berenicea primitiva. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 157, pl. vi, 4.

Cincinnati (Lorraine and Richmond): Cincinnati, Waynesville, Lebanon, Clarksville, and other localities in Ohio; Richmond and Versailles, Indiana.

Berenicea vesiculosa Ulrich.

1882. Berenicea vesiculosa. Ulrich, Jour. Cincinnati Soc. Nat. Hist.., V, p. 158, pl. vi, 5.

Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

BOTRYLLOPORA Nicholson. Genotype: Botryllopora socialis Nicholson.

1874. Botryllopora. Nicholson, Canad. Jour., XIV, p. 133.

1874. Botryllopora. Nicholson, Geol. Mag., new ser., I, p. 159.

1874. Botryllopora. Nicholson, Pal. Province Ontario, p. 96.

1887. Botryllopora. Hall and Simpson, Pal. New York, VI, p. xxvi.

1889. Botryllopora. Miller, North American Geol. Pal., p. 294.

1890. Botryllopora. Ulrich, Geol. Surv. Illinois, VIII, p. 384.

1897. Botryllopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 592.

1899. Botryllopora. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 177.

Botryllopora socialis Nicholson.

1874. Botryllopora socialis. Nicholson, Geol. Mag., new ser., I, p. 160, pl. ix, 16.

1874. Botryllopora socialis. Nicholson, Pal. Province Ontario, p. 96, fig. 32.

1884. Botryllopora socialis. Hall, Rep. State Geologist New York for the year 1883, p. 61.

1887. Botryllopora socialis. Hall and Simpson, Pal. New York, VI, p. 282, pl. lxiv, 3, 4.

1889. Botryllopora socialis. Miller, North American Geol. Pal., fig. 459 (p. 295).

1890. Botryllopora socialis. Ulrich, Geol. Surv. Illinois, VIII, p. 490, pl. xliii, 9–9 *b*.

1897. Botryllopora socialis. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xx, 16, 17.

1899. Botryllopora socialis. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 177, fig. 75.

Hamilton: Arkona and West Williams, Ontario, Canada; Eighteenmile Creek, New York; near Alpena, Michigan; Falls of the Ohio.

Obs. See also Fistulipora helios Rominger.

BUSKOPORA Ulrich. Genotype: Buskopora dentata Ulrich.

1886. Buscopora. Ulrich, Contr. American Pal., I, p. 22.

1889. Buscopora. Miller, North American Geol. Pal., p. 295.

1890. Buskopora. Ulrich, Geol. Surv. Illinois, VIII, p. 383.

1896. Buskopora. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 270.

BUSKOPORA Ulrich—Continued.

1886. Odontotrypa. Hall, Rep. State Geologist New York for the year 1885, explanation sheet, pl. xxx.
1887. Odontotrypa. Hall and Simpson, Pal. New York, VI, pl. xvii.
1889. Odontotrypa. Miller, North American Geol. Pal., p. 313.
1897. Odontotrypa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 561.

Obs. See also remarks under Glossotrypa Hall.

Buskopora bistriata (Hall).

1883. Lichenalia bistriata. Hall, Trans. Albany Institute, X, p. 150 (abstract, 1881, p. 8).
1886. Lichenalia bistriata. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxxii, 6–14.
1887. Lichenalia bistriata. Hall and Simpson, Pal. New York, VI, p. 79, pl. xxxii, 6–14.
1897. Pileotrypa bistriata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxiii, 14.
1883. Lichenalia alveata. Hall, Trans. Albany Institute, X, p. 152 (abstract, 1881, p. 10).
1886. Lichenalia (Odontotrypa) alveata. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxx, 24–27.
1887. Lichenalia (Odontotrypa) alveata. Hall and Simpson, Pal. New York, VI, p. 85, pl. xxx, 24–27.
1897. Odontotrypa alveata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxiv, 1–3.

Hamilton: Falls of the Ohio.

Buskopora dentata Ulrich.

1886. Buscopora dentata. Ulrich, Contr. American Pal., I, p. 22, pl. ii, 5, 5*a*.
1896. Buskopora dentata. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 446 (p. 270).
1883. Lichenalia lunata n. sp. (not Rominger's). Hall, Trans. Albany Institute, X, p. 152 (abstract, 1881, p. 10).
1886. Lichenalia lunata. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxxi, 1–9.
1887. Lichenalia lunata. Hall and Simpson, Pal. New York, VI, p. 77, pl. xxxi, 1–9.
1897. Lichenalia lunata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxiii, 5, 6
1889. Buskopora lunata. Miller, North American Geol. Pal., fig. 460 (p. 295).
1890. Buskopora lunata. Ulrich, Geol. Surv. Illinois, VIII, p. 489, pl. xlviii, 7–7*d*.
1886. Lichenalia lunata var. tubulata. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxxi, 28, 29.
1887. Lichenalia lunata var. tubulata. Hall and Simpson, Pal. New York, VI, p. 78, pl. xxxi, 28, 29.
1889. Buscopora lunata var. tubulata. Miller, North American Geol. Pal., p.295.

Hamilton: Falls of the Ohio.

Obs. Both Hall and Ulrich (in part) have regarded their species as synonyms for Rominger's Fistulipora lunata. It is very doubtful whether these forms are specifically the same as Rominger's; until such relationship is proved, we prefer to keep them distinct. But Hall's Lichenalia lunata and Ulrich's Buskopora dentata are the same form; as Hall's name is the same as Rominger's, it should be dropped in favor of Ulrich's name.

Buskopora lunata (Rominger).

1866. Fistulipora lunata. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 120.
Upper Helderberg: Sandusky and Columbus, Ohio.

Buskopora lunata Ulrich. See Buskopora dentata Ulrich.

Buskopora lunata var. tubulata Miller. See Buskopora dentata Ulrich.

Buskopora pyriformis (Hall).

1883. Lichenalia pyriformis. Hall, Trans. Albany Institute, X, p. 154 (abstract, 1881, p. 12).
1886. Lichenalia (Pileotrypa) pyriformis. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxxi, 21–27.
1887. Lichenalia (Pileotrypa) pyriformis. Hall and Simpson, Pal. New York, VI, p. 82, pl. xxxi, 21–27.
1897. Pileotrypa pyriformis. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxiii, 9–11.
Hamilton: Falls of the Ohio.

BYTHOPORA Miller and Dyer. Genotype: Bythopora fruticosa Miller and Dyer = Helopora dendrina James.

1878. Bythopora. Miller and Dyer, Contr. to Pal., No. 2, p. 6.
1889. Bythopora. Miller, North American Geol. Pal., p. 295.
1890. Bythopora. Ulrich, Geol. Surv. Illinois, VIII, p. 376.
1893. Bythopora. Ulrich, Geol. Minnesota, III, p. 263.
1896. Bythopora. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 277.
1897. Bythopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 551.

Bythopora alcicornis Ulrich.

1893. Bythopora alcicornis. Ulrich, Geol. Minnesota, III, p. 264, pl. xxvi, 7–9.
1897. Bythopora alcicornis. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 121 (p. 551).
Trenton (Black River): Cannon Falls, Minnesota.

Bythopora arctipora (Nicholson).

1875. Ptilodictya ? arctipora. Nicholson, Ann. Mag. Nat. Hist., ser. 4, XV, p. 180, pl. xiv, 4–4*b*.
1875. Ptilodictya ? arctipora. Nicholson, Pal. Ohio, II, p. 262, pl. xxv, 9–9*b*.
1878. Bythopora arctipora. Miller and Dyer, Contr. to Pal., No. 2, p. 6.
Cincinnati (Utica): Cincinnati, Ohio, and vicinity.
Obs. See also Bythopora parvula (James).

Bythopora delicatula (Nicholson).

1874. Chætetes delicatulus. Nicholson, Quar. Jour. Geol. Soc. London, XXX, p. 505, pl. xxix, 8–8*b*.
1875. Chætetes delicatulus. Nicholson, Pal. Ohio, II, p. 199, pl. xxi, 9, 9*a*.
1875. Chætetes delicatulus. Nicholson, Pal. Province Ontario, p. 30.
1888. Monticulipora delicatula. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 173.
1889. Bythopora ? delicatula. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 36.
1895. Bythopora delicatula. Whiteaves, Pal. Foss., III, p. 116.
1879. Chætetes minutus. James, Paleontologist, No. 3, p. 20. (See James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 173.)
Cincinnati (Richmond): Oxford, Waynesville, Lebanon, and other localities in Ohio; Richmond and Versailles, Indiana; Weston and Toronto, Ontario, Canada; Stony Mountain, Manitoba, Canada.

Bythopora dendrina (James).

1878. Helopora dendrina. James, Paleontologist, No. 1, p. 3, (July 2, 1878); ibid., No. 2, p. 14.

1878. Bythopora fruticosa. Miller and Dyer, Contr. to Pal., No. 2, p. 6, pl. iv, 6, 6*a*, (July 22, 1878).

1889. Bythopora fruticosa. Miller, North American Geol. Pal., fig. 461 (p. 295).

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

Bythopora fruticosa Miller and Dyer. See Bythopora dendrina (James).

Bythopora gracilis (Nicholson).

1871. Chætetes gracilis. James, Catal. Low. Sil. Foss. Cincinnati Group, p. 3. (Not defined).

1874. Chætetes gracilis. Nicholson, Quar. Jour. Geol. Soc. London, XXX, p. 504, pl. xxix, 7, 7*a*.

1875. Chætetes gracilis. Nicholson, Pal. Ohio, II, p. 198, pl xxi, 8–8*b*.

1875. Chætetes gracilis. Nicholson, Pal. Province Ontario, p. 11. (Same species ?)

1876. Chætetes gracilis. Nicholson, Ann. Mag. Nat. Hist., ser. 4, XXVIII, p. 90, pl. v, 13.

1881. Monticulipora (Heterotrypa) gracilis. Nicholson, Genus Monticulipora, p. 125, pl. ii, 1–1*b* and fig. 20.

1882. Batostomella gracilis. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 141; ibid., VI, 1883, p. 83.

1883. Monticulipora gracilis. (Van Cleve) Hall, Twelfth Ann. Rep. Indiana Geol. Nat. Hist., p. 248, pl. x, 1–3, pl. xi, 11.

1886. Batostomella gracilis. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Surv. Minnesota, p. 103.

1888. Monticulipora gracilis. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 173.

1889. Batostomella gracilis. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 35.

1889. Batostomella gracilis. Miller, North American Geol. Pal., fig. 458 (p. 294).

1890. Batostomella gracilis. Ulrich, Geol. Surv. Illinois, VIII, p. 432, pl. xxxv, 2.

1893. Homotrypella gracilis. Ulrich, Geol. Minnesota, III, p. 228.

1894. Monticulipora gracilis. J. F. James, Jour. Cincinnati Soc. Nat. Hist, XVI, p. 191.

1895. Homotrypella gracilis. Whiteaves, Pal. Foss., III, p. 115.

1881. Chætetes læviramus. Quenstedt, Roehren- und Sternkorallen, p. 81, pl. cxlvi, 2*b*.

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

Bythopora herricki (Ulrich).

1886. Bythopora herricki. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Surv. Minnesota, p. 99.

1893. Bythopora herricki. Ulrich, Geol. Minnesota, III, p. 263, pl. xxvi, 1–6.

1897. Bythopora Herricki. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 120 (p. 551).

Trenton (Black River): St. Paul and Minneapolis, Minnesota.

Bythopora meeki (James).

1878. Chætetes meeki. James, Paleontologist, No. 1, p. 1.

1881. Monticulipora (Chætetes) meeki. James, Paleontologist, No. 5, p. 35.

1881. Monticulipora gracilis var. meeki. Nicholson, Genus Monticulipora, p. 127.

1888. Monticulipora meeki. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 174.

1893. Homotrypella meeki. Ulrich, Geol. Minnesota, III, p. 228.

Bythopora meeki (James)—Continued.

1894. Monticulipora meeki. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 192.

Cincinnati (Richmond): Waynesville, Oxford, Lebanon, and other localities in Ohio; Richmond and Versailles, Indiana.

Bythopora nashvillensis Miller. See Rhinidictya nashvillensis (Miller.)

Bythopora parvula (James).

1878. Helopora parvula. James, Paleontologist, No. 1, p. 3.

1878. Helopora approximata. James, Paleontologist, No. 1, p. 3.

Cincinnati (Utica): Obanon Creek, Clermont County, Ohio.

Obs. This form may not be distinct from Bythopora arctipora (Nicholson).

Bythopora spinulosa (Hall).

1852. Trematopora spinulosa. Hall, Pal. New York, II, p. 155, pl. xlA, 11*a–c*.

Niagara: Lockport, New York.

Bythopora striata Ulrich.

1889. Bythopora striata. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 36.

1895. Bythopora striata. Whiteaves, Pal. Foss., III, p. 116.

Cincinnati (Richmond): Stony Mountain, Manitoba; Middletown and many other localities in Ohio.

BYTHOTRYPA Ulrich. Genotype: Fistulipora ? laxata Ulrich.

1893. Bythotrypa. Ulrich, Geol. Minnesota, III, p. 324.

1896. Bythotrypa. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 268.

Bythotrypa epidermata (Ulrich).

1890. Crepipora epidermata. Ulrich, Geol. Surv. Illinois, VIII, p. 471, pl. xl, 1–1*e*.

Cincinnati (Richmond): Wilmington and Savannah, Illinois.

Bythotrypa laxata (Ulrich).

1889. Fistulipora? laxata. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 37, pl. viii, 2, 2*a*.

1893. Bythotrypa laxata. Ulrich, Geol. Minnesota, III, p. 325, pl. xxviii, 21–25.

1896. Bythotrypa laxata. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 440 (p. 268).

1897. Bythotrypa laxata. Whiteaves, Pal. Foss., III, Part III, p. 163.

Trenton (Stones River, Black River, and Trenton): St. Andrews, Manitoba; Minneapolis, St. Paul, Kenyon, Berne, and Cannon Falls, Minnesota; Rockton, Illinois; Decorah, Iowa.

Callopora Dybowski (not Hall). See Diplotrypa Nicholson.

CALLOPORA Hall. (Not Callopora Gray, 1848.)[1] Genotype: Callopora elegantula Hall.

1852. Callopora. Hall, Pal. New York, II, p. 144.

1874. Callopora. Nicholson, Pal. Province Ontario, p. 61.

1874. Callopora. Nicholson, Geol. Mag. new ser., I, p. 13.

1879. Callopora. Hall, Twenty-eighth Ann. Rep. New York State Mus., p. 114.

1882. Callopora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, pp. 154, 251.

1887. Callopora. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 172.

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[1] In 1848 Gray (Proc. Zool. Soc., London, Appendix, 1848, and List of British Animals in the collection of the British Museum, 1848, pp. 109, 146) proposed the generic term Callopora for a single species, the Flustra lineata of Linnæus, but the term failed to gain acceptance, and the species lineata is now considered to be a Membranipora. As Callopora Hall has become deeply engrafted into literature, it seems undesirable under the circumstances to replace it by a new name.

CALLOPORA Hall—Continued.

1887. Callopora. Hall and Simpson, Pal. New York, VI, p. xv.
1889. Callopora. Miller, North American Geol. Pal., p. 295.
1890. Callopora. Ulrich, Geol. Surv. Illinois, VIII, pp. 372, 416.
1893. Callopora. Ulrich, Geol. Minnesota, III, p. 275.
1896. Callopora. Ulrich, Zittel's Textb. Pal. (Engl. Ed.), p. 275.
1897. Callopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 588.
1877. Monticulipora (Section 1). Dybowski, Die Chætetiden d. Ostb. Silur-Form., p. 89.

Callopora aculeolata Hall. See Cœlocaulis ?? aculeolata (Hall).

Callopora (Cœlocaulis) aculeolata Hall. See Cœlocaulis ?? aculeolata (Hall).

Callopora ampla Ulrich.

1893. Callopora ampla. Ulrich, Geol. Minnesota, III, p. 281, pl. xxiii, 13–15, 18–20, 22, 23, 27, 28.
Trenton (Black River and Trenton): Ramsey, Goodhue, and Fillmore counties, Minnesota; Decorah, Iowa; Belleville, Canada.

Callopora andrewsi (Nicholson).

1874. Chætetes pulchellus (not of Milne-Edwards and Haime). Nicholson, Quar. Jour. Geol. Soc. London, XXX, p. 503, pl. xxix, 5–5*b*.
1875. Chætetes pulchellus (not of Milne-Edwards and Haime). Nicholson, Pal. Ohio, II, p. 195, pl. xxi, 5, 5*a*.
1881. Monticulipora (Heterotrypa) Andrewsii. Nicholson, Genus Monticulipora, p. 128, fig. 21, pl. v, 1, 1*a*.
1882. Callopora andrewsi. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 252.
1883. Monticulipora andrewsii. (Van Cleve) Hall, Twelfth Ann. Rep. Indiana Geol. Nat. Hist., p. 249, pl. xi, 9.
1888. Monticulipora andrewsii. James and James, Jour. Cincinnati Soc. Nat., Hist., X, p. 178.
1894. Monticulipora andrewsii. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 200.
Cincinnati (Lorraine): Cincinnati, Ohio and vicinity.

Callopora angularis Ulrich.

1893. Callopora angularis. Ulrich, Geol. Minnesota, III, p. 277, pl. xxii, 37–41.
Trenton (Stones River): Minneapolis, Chatfield, and Fountain, Minnesota.

Callopora aspera Hall. See Lioclema asperum (Hall).

Callopora bipunctata Hall. See Streblotrypa hamiltonensis (Nicholson).

Callopora bispinulata Hall. See Orthopora bispinulata (Hall).

Callopora cellulosa Hall. See Lioclema cellulosum (Hall).

Callopora ? ? cervicornis Hall.

1883. Callopora cervicornis. Hall, Trans. Albany Institute, X, p. 59 (abstract, 1879, p. 3).
1882. Callopora cervicornis. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 238.
Niagara; Waldron, Ind.
Obs. It is doubtful whether this species can be recognized in the absence of figures, from the rather inadequate description.

Callopora cincinnatiensis Ulrich. See Lioclema occidens (Hall and Whitfield).

Callopora ? crenulata Ulrich.

1893. Callopora crenulata. Ulrich, Geol. Minnesota, III, p. 284, pl. xxii, 18–23.

Trenton (Black River and Trenton): St. Paul and Cannon Falls, Minnesota; Decorah, Iowa; Neenah, Wisconsin.

Callopora dalei (Milne-Edwards and Haime).

1851. Chætetes Dalii. Milne-Edwards and Haime, Pol. Foss. Terr. Pal., p. 266, pl. xix, 6, *6a*.

1854. Monticulipora Dalii. Milne-Edwards and Haime, British Foss. Corals, p. 265.

1860. Monticulipora Dalii. Milne-Edwards, Hist. Nat. des Corall., III, p. 277.

1881. Monticulipora (Heterotrypa) ramosa var. dalei. Nicholson, Genus Monticulipora, p. 115, fig. 19, C, D, pl. ii, 4.

1882. Callopora dalei. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 252.

1888. Monticulipora ramosa var. dalei. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 182.

1894. Monticulipora ramosa var. dalei. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 205.

1874. Chætetes approximatus. Nicholson, Quar. Jour. Geol. Soc. London, XXX, p. 502, pl. xxix, 3, *3a*.

1875. Chætetes approximatus. Nicholson, Pal. Ohio, II, p. 193, pl. xxi, 3.

1883. Monticulipora approximatus. (Van Cleve) Hall, Twelfth Ann. Rep. Indiana Geol. Nat. Hist., p. 250, pl. xi, 6.

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

Callopora ? ? diversa Hall.

1883. Callopora ? diversa. Hall, Trans. Albany Institute, X, p. 60 (abstract, 1879, p. 4).

1882. Callopora ? diversa. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 239.

Niagara: Waldron, Indiana.

Obs. It is doubtful whether this species can be recognized in the absence of figures, from the description given.

Callopora dumalis Ulrich.

1893. Callopora dumalis. Ulrich, Geol. Minnesota, III, p. 282, pl. xxiii, 1–8.

Trenton (Stones River and Black River): St. Paul and Cannon Falls, Minnesota.

Callopora elegantula Hall.

1852. Callopora elegantula. Hall, Pal. New York, II, p. 144, pl. xl, *1a–m*.

1879. Callopora elegantula. Hall, Twenty-eighth Ann. Rep. New York State Mus., p. 115.

1882. Callopora elegantula. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 237.

1882. Callopora elegantula. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 250, pl. xi, 6–*6b*.

1896. Callopora elegantula. Ulrich, Zittel's Textb. Pal. (Engl. Ed.), fig. 456, A, B (p. 274).

1897. Callopora elegantula. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xviii, 1–7.

Niagara: Lockport, New York; Waldron and Osgood, Indiana; Sterling, Illinois.

Callopora exsul Hall. See Lioclema ? exsul (Hall).

Callopora fistulosa Hall. See Lioclema cellulosum (Hall).

Callopora florida Hall. See Lioclema? (Nicholsonella?) floridum (Hall).

Callopora geniculata Hall. See Callotrypa? geniculata (Hall).

Callopora goodhuensis Ulrich.

1893. Callopora goodhuensis. Ulrich, Geol. Minnesota, III, p. 282, pl. xxiii, 9, 10, 21, 29.

Trenton: Cannon Falls and St. Paul, Minnesota.

Callopora Hamiltonensis Hall. See Streblotrypa hamiltonensis (Nicholson).

Callopora hemispherica Hall. See Fistulipora? hemispherica (Hall).

Callopora heteropora Hall. See Callotrypa heteropora (Hall).

Callopora (Callotrypa) heteropora Hall. See Callotrypa heteropora (Hall).

Callopora Hyale Hall. See Cœlocaulis?? hyale (Hall).

Callopora (Cœlocaulis) Hyale Hall. See Cœlocaulis?? hyale (Hall).

Callopora incontroversa Ulrich.

1886. Callopora incontroversa. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Surv. Minnesota, p. 96.

1893. Callopora incontroversa. Ulrich, Geol. Minnesota, III, p. 278, pl. xxii, 33–36.

Trenton (Stones River): Minneapolis, St. Paul, and Preston, Minnesota.

Callopora incrassata Nicholson. See Fistulipora incrassata (Nicholson).

Callopora internodata Hall. See Callotrypa internodata (Hall).

Callopora (Callotrypa) internodata Hall. See Callotrypa internodata (Hall.)

Callopora irregularis Hall. See Cœlocaulis? irregularis (Hall).

Callopora (Cœlocaulis) irregularis Hall. See Cœlocaulis? irregularis (Hall).

Callopora laminata Hall. See Lioclema? (Nicholsonella?) laminatum (Hall).

Callopora macropora Hall. See Callotrypa macropora (Hall) and Callopora?? oppleta Hall and Simpson.

Callopora (Callotrypa) macropora Hall. See Callotrypa macropora (Hall).

Callopora macropora var. signata Hall. See Callotrypa macropora-signata (Hall).

Callopora (Callotrypa) macropora var. signata Hall. See Callotrypa macropora-signata (Hall).

Callopora maculosa Hall. See Fistulipora maculosa (Hall).

Callopora magnopora Foerste.

1887. Callopora magnopora. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 173; III, pl. xvi, 5.

1895. Callopora magnopora. Foerste, Geol. Surv. Ohio, VII, p. 600, pl. xxix, 5.

Clinton: Dayton and Centerville, Ohio.

Callopora (Cœlocaulis) mediopora Hall. See Cœlocaulis? mediopora (Hall).

Callopora milfordensis James. See Ceramoporella granulosa-milfordensis (James).

Callopora minutissima Nicholson. See Lioclema minutissimum (Nicholson).

Callopora missouriensis Rominger. See Lioclema punctatum (Hall).

Callopora multiseriata Hall. See Callotrypa multiseriata (Hall).

Callopora multitabulata (Ulrich).

1886. Monotrypella multitabulata. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Surv. Minnesota, p. 100.

1893. Callopora multitabulata. Ulrich, Geol. Minnesota, III, p. 280, pl. xxiii, 11, 12, 16, 17, 24–26, 30, 31.

1896. Callopora multitabulata. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 456, C, D (p. 274).

Trenton (Black River and Trenton): Burgin and Frankfort, Kentucky; Minneapolis, St. Paul, and Cannon Falls, Minnesota; Nashville, Tennessee; Ottawa, Canada.

Callopora nodulosa (Nicholson).

1874. Chætetes? nodulosus. Nicholson, Quar. Jour. Geol. Soc. London, XXX, p. 506, pl. xxix, 9, 9*a*.

1875. Chætetes nodulosus. Nicholson, Pal. Ohio, II, p. 200, pl. xxi, 10, 10*a*.

1876. Chætetes nodulosus. Nicholson, Ann. Mag. Nat. Hist., ser. 4, XVIII, p. 87, pl. v, 3.

1881. Monticulipora (Heterotrypa) nodulosa. Nicholson, Genus Monticulipora, p. 116, pl. i, 4–4*d*.

1882. Callopora nodulosa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 252; ibid., VI, 1883, p. 83.

1888. Monticulipora nodulosa. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 182.

1894. Monticulipora nodulosa. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 206.

Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

Callopora ?? nummiformis Hall.

1852. Callopora nummiformis. Hall, Pal. New York, II, p. 148, pl. xl, 5*a*, *b*.

1890. Calloporella? nummiformis. Ulrich, Geol. Surv. Illinois, VIII, p. 416.

Niagara: Lockport, New York.

Callopora oculifera Hall. See Callotrypa oculifera (Hall).

Callopora (Callotrypa) oculifera Hall. See Callotrypa oculifera (Hall).

Callopora ohioensis Foerste. See Lioclemella ohioensis (Foerste).

Callopora onealli (James).

1875. Chætetes ? O'Nealli. James, Introd. Catal. Low. Sil. Foss., p. 2.

1888. Monticulipora o'nealli. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 174.

1889. Callopora onealli. Miller, North American Geol. Pal., p. 296.

1894. Monticulipora o'nealli. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 194.

Not Monticulipora (Heterotrypa) O'Nealli. Nicholson, Genus Monticulipora, p. 118 = Callopora onealli-sigillarioides (Nicholson).

Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

Callopora onealli-communis (James).

1882. Monticulipora (Heterotrypa) o'nealli ? var. communis. James, Paleontologist, No. 6, p. 47; ibid., No. 7, 1888, pl. i, 8.

Callopora onealli-communis (James)—Continued.

1888. Monticulipora communis. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 175, pl. ii, 5 *a*, *b*.
1894. Monticulipora communis. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 195.
Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

Callopora onealli-sigillarioides (Nicholson).

1875. Chætetes sigillarioides. Nicholson, Pal. Ohio, II, p. 203, pl. xxii, 9, 9*a*.
1876. Chætetes sigillarioides. Nicholson, Ann. Mag. Nat. Hist., ser. 4, XVIII, p. 87, pl. v, 2.
1882. Callopora sigillaroidea. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 252.
1889. Callopora sigillarioides. Miller, North American Geol. Pal., fig. 464 (p. 296).
1881. Monticulipora (Heterotrypa) O'Nealli (not of James). Nicholson, Genus Monticulipora, p. 118, pl. iii, 3–3*f*.
Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

Callopora ?? oppleta Hall and Simpson.

1879. Callopora macropora (in part). Hall, Thirty-second Ann. Rep. New York State Mus., p. 152 (reprint, 1880, p. 14).
1883. Callopora macropora (in part). Hall, Rep. State Geologist New York for the year 1882, pl. xi, 23, 24.
1887. Callopora oppleta. Hall and Simpson, Pal. New York, VI, p. 21, pl. xi, 23, 24 (called Callopora macropora on plate).
Lower Helderberg; near Clarksville, N. Y.
Obs. This is probably a species of Eridotrypa.

Callopora parasitica Hall. See Lioclema parasiticum (Hall) and Cœlocaulis ? mediopora (Hall).

Callopora (Callotrypa) paucipora Hall. See Callotrypa paucipora (Hall).

Callopora perelegans Hall.

1874. Callopora perelegans. Hall, Twenty-sixth Ann. Rep. New York State Mus., p. 102.
1879. Callopora perelegans. Hall, Thirty-second Ann. Rep. New York State Mus., p. 154 (reprint, 1880, p. 16).
1883. Callopora perelegans. Hall, Rep. State Geologist New York for the year 1882, pl. xii, 10–17.
1887. Callopora perelegans. Hall and Simpson, Pal. New York, VI, p. 22, pl. xii, 10–17, pl. xxiii A, 14.
Lower Helderberg: Clarksville, New York.

Callopora ponderosa Hall. See Lioclema ponderosum (Hall).

Callopora pulchella Ulrich.

1893. Callopora pulchella. Ulrich, Geol. Minnesota, III, p. 283, pl. xxii, 1–12.
Trenton (Black River): St. Paul and Cannon Falls, Minnesota.

Callopora pulchella-persimilis Ulrich.

1893. Callopora pulchella var. persimilis. Ulrich, Geol. Minnesota, III, p. 284, pl. xxii, 13–17.
Trenton (Black River): Cannon Falls, Minnesota.

Callopora punctata Hall. See Lioclema punctatum (Hall).

Callopora punctillata Winchell. See Lioclema punctillatum (Winchell).

Callopora ramosa (D'Orbigny).

1850. Monticulipora ramosa. D'Orbigny, Prodr. de Pal., I, p. 25.

1851. Chætetes ramosus. Milne-Edwards and Haime, Pol. Foss. Terr. Pal., p. 266, pl. xix, 2, 2*a*.

1854. Monticulipora ramosa. Milne-Edwards and Haime, British Foss. Corals, p. 265.

1860. Monticulipora ramosa. Milne-Edwards, Hist. Nat. des Corall., III, p. 277.

1876. Chætetes ramosus. Nicholson, Ann. Mag. Nat. Hist., ser. 4, XVIII, p. 88.

1879. Monticulipora (Heterotrypa) ramosa. Nicholson, Pal. Tab. Corals, p. 296, pl. xiii, 2, 2*a*.

1881. Chætetes ramosus. Quenstedt, Roehren- und Sternkorallen, p. 77, pl. cxlvi, 13–18.

1881. Monticulipora (Heterotrypa) ramosa. Nicholson, Genus Monticulipora, p. 110, fig. 18, pl. ii, 2, 2*a*.

1882. Callopora ramosa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 252.

1888. Monticulipora ramosa. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 181.

1890. Callopora ramosa. Ulrich, Geol. Surv. Illinois, VIII, fig. 5*b* (p. 315).

1894. Monticulipora ramosa. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 204.

1896. Monticulipora (Heterotrypa) ramosa. Zittel, Textb. Pal. (Engl. ed.), fig. 185 (p. 103), fig. 186 B (p. 103).

1874. Chætetes Dalei (not of Milne-Edwards and Haime). Nicholson, Quar. Jour. Geol. Soc. London, XXX, p. 501, pl. xxix, 1, 1*a*.

1875. Chætetes Dalei (not of Milne-Edwards and Haime). Nicholson, Pal. Ohio, II, p. 192, pl. xxi, 1, 1*a*.

1883. Monticulipora Dalii. (Van Cleve) Hall, Twelfth Ann. Rep. Indiana Geol. Nat. Hist., p. 249, pl. xi, 2.

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

Callopora ramosa var. rugosa Ulrich. See Callopora rugosa (Milne-Edwards and Haime).

Callopora rugosa (Milne-Edwards and Haime).

1851. Chætetes rugosus. Milne-Edwards and Haime, Pol. Foss. Terr. Pal., p. 268, pl. xx, 6, 6*a*.

1854. Monticulipora rugosa. Milne-Edwards and Haime, British Foss. Corals, p. 265.

1860. Monticulipora rugosa. Milne-Edwards, Hist. Nat. des Corall., III, p. 277.

1874. Chætetes rugosus. Nicholson, Quar. Jour. Geol. Soc. London, XXX, p. 502, pl. xxix, 2.

1875. Chætetes rugosus. Nicholson, Pal. Ohio, II, p. 193, pl. xxi, 2.

1876. Chætetes rugosus. Nicholson, Ann. Mag. Nat. Hist., ser. 4, XVIII, p. 87, pl. v, 4.

1877. Monticulipora rugosa. Dybowski, Die Chætetiden d. Ostb. Silur-Form, p. 92, pl. iii, 1.

1881. Monticulipora (Heterotrypa) ramosa var. rugosa. Nicholson, Genus Monticulipora, p. 113, fig. 19, A, B, pl. ii, 3.

1881. Chætetes rugosus. Quenstedt, Roehren- und Sternkorallen, p. 78, pl. cxlvi, 19, 20.

1882. Callopora ramosa var. rugosa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 252.

1888. Monticulipora ramosa var. rugosa. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 182.

Callopora rugosa (Milne-Edwards and Haime)—Continued.

1894. Monticulipora ramosa var. rugosa. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 205.

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

Callopora sigillaroidea Ulrich. See Callopora onealli-sigillarioides (Nicholson).

Callopora singularis Hall. See Trematopora ? singularis (Hall).

Callopora (Callotrypa) striata Hall. See Callotrypa striata (Hall).

Callopora subnodosa Ulrich.

1890. Callopora subnodosa. Ulrich, Geol. Surv. Illinois, VIII, p. 417, pl. xxxiii, 5, 5*c*, fig. 3*d* (p.308).

1889. Callopora subnodosa. (Ulrich in press), Miller, North American Geol. Pal., fig. 465 (p. 296).

Cincinnati (Richmond): Blanchester, Waynesville, Hanover, and other localities in Ohio; Richmond and Versailles, Indiana; Wilmington and Savannah, Illinois; Iron Ridge, Wisconsin.

Callopora subplana Ulrich.

1882. Callopora subplana. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 253, pl. xi, 7, 7*b*.

1894. Callopora subplana. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 196.

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

Callopora undulata Ulrich.

1886. Callopora undulata. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Surv. Minnesota, p. 95.

1893. Callopora undulata. Ulrich, Geol. Minnesota, III, p. 279, pl. xxii, 24–31.

Trenton (Black River): Minneapolis and St. Paul, Minnesota.

Callopora unispina Hall. See Callotrypa unispina (Hall) and Callotrypa striata (Hall).

Callopora (Callotrypa) unispina Hall. See Callotrypa unispina (Hall).

Callopora venusta Hall. See Cœlocaulis venusta (Hall).

Callopora (Cœlocaulis) venusta Hall. See Cœlocaulis venusta (Hall).

CALLOPORELLA Ulrich. Genotype: Calloporella harrisi Ulrich = Monticulipora (Heterotrypa) circularis James.

1882. Calloporella. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 154.

1889. Calloporella. Miller, North American Geol. Pal., p. 296.

1890. Calloporella. Ulrich, Geol. Surv. Illinois, VIII, pp. 373, 418.

Calloporella circularis (James).

1882. Monticulipora (Heterotrypa) circularis. James, Paleontologist, No. 6, p. 46.

1883. Monticulipora circularis. James, Paleontologist, No. 7, p. 58, pl. i, 3, 3*a*.

1883. Calloporella harrisi. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 91, pl. i, 5–5*c*.

1888. Monticulipora lens (not Nebulipora lens McCoy). James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 165.

1894. Monticulipora lens (not Nebulipora lens McCoy). J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 181.

Cincinnati (Richmond): Oxford, Waynesville, Blanchester, and other localities in Ohio.

Calloporella harrisi Ulrich. See Calloporella circularis (James).

Calloporella ? lens (Whitfield).

1878. Fistulipora lens. Whitfield, Ann. Rep. Wisconsin Geol. Surv. for 1877, p. 69.

1882. Fistulipora lens. Whitfield, Geol. Surv. Wisconsin, IV, p. 256, pl. xi, 5, 6.

Cincinnati (Richmond): Delafield, Wisconsin.

Calloporella ? nodulosa Ulrich.

1890. Calloporella ? nodulosa. Ulrich, Geol. Surv. Illinois, VIII, p. 418, pl. xxxiii, 4, 4*a*.

1895. Monticulipora verrucosa. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 85.

Cincinnati (Richmond): Savannah, Illinois.

Calloporella ? nummiformis Ulrich. See Callopora ?? nummiformis Hall.

CALLOTRYPA Hall and Simpson. Genotype: Callopora macropora Hall.

1887. Callotrypa. Hall and Simpson, Pal. New York, VI, pp. xvi, 24.

1889. Callotrypa. Miller, North American Geol. Pal., p. 296.

1890. Callotrypa. Ulrich, Geol. Surv. Illinois, VIII, p. 376.

1897. Callotrypa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 551.

Callotrypa ? geniculata (Hall).

1886. Callopora geniculata. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxv, 1-3.

1887. Callopora geniculata. Hall and Simpson, Pal. New York, VI, p. 75, pl. xxv, 1-3.

Upper Helderberg: Ontario.

Callotrypa heteropora (Hall).

1874. Callopora heteropora. Hall, Twenty-sixth Ann. Rep. New York State Mus., p. 102.

1879. Callopora heteropora. Hall, Thirty-second Ann. Rep. New York State Mus., p. 153 (reprint, 1880, p. 15).

1883. Callopora heteropora. Hall, Rep. State Geologist New York for 1882, pl. xi, 32-34, pl. xiii, 5-8.

1887. Callopora (Callotrypa) heteropora. Hall and Simpson, Pal. New York, VI, p. 25, pl. xi, 32-34, pl. xiii, 5-8, pl. xxiii, 3.

Lower Helderberg: Clarksville, New York.

Callotrypa internodata (Hall).

1883. Callopora internodata. Hall, Trans. Albany Institute, X, p. 182 (abstract, 1881, p. 182).

1884. Callopora internodata. Hall, Rep. State Geologist New York for the year 1883, p. 16.

1887. Callopora (Callotrypa) internodata. Hall and Simpson, Pal. New York, VI, p. 189.

Hamilton: Darien Center, New York.

Callotrypa macropora (Hall).

1874. Callopora macropora. Hall, Twenty-sixth Ann. Rep. New York State Mus., p. 101.

1879. Callopora macropora. Hall, Thirty-second Ann. Rep. New York State Mus., p. 152 (reprint, 1880, p. 14).

Callotrypa macropora (Hall)—Continued.

1883. Callopora macropora (in part). Hall, Rep. State Geologist New York for the year 1882, pl. xi, 23–29.

1887. Callopora (Callotrypa) macropora. Hall and Simpson, Pal. New York, VI, p. 24, pl. xi, 25–29, pl. xxiii, 15–19.

1897. Callotrypa macropora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xviii, 12–14.

Lower Helderberg: Catskill, Clarksville, and Schoharie, New York.

Callotrypa macropora-signata (Hall).

1874. Trematopora signata. Hall, Twenty-sixth Ann. Rep. New York State Mus., p. 104.

1879. Callopora macropora var. signata. Hall, Thirty-second Ann. Rep. New York State Mus., p. 153 (reprint, 1880, p. 15).

1883. Callopora macropora var. signata. Hall, Rep. State Geologist New York for the year 1882, pl. xi, 30, 31.

1887. Callopora (Callotrypa) macropora var. signata. Hall and Simpson, Pal. New York, VI, p. 25, pl. xi, 30, 31.

Lower Helderberg: Clarksville, New York.

Callotrypa multiseriata (Hall).

1883. Callopora multiseriata. Hall, Trans. Albany Institute, X, p. 149 (abstract, 1881, p. 7).

1883. Callopora multiseriata. Hall, Rep. State Geologist New York for the year 1882, pl. xxiv, 18, 19.

1886. Callopora multiseriata. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxv, 6, 7.

1887. Callopora multiseriata. Hall and Simpson, Pal. New York, VI, p. 75, pl. xxv, 6, 7, pl. xxvi, 18, 19.

1889. Callotrypa multiseriata. Miller, North American Geol. Pal., p. 296.

1890. Callotrypa multiseriata. Ulrich, Geol. Surv. Illinois, VIII, p. 376.

Upper Helderberg: Le Roy, New York.

Callotrypa oculifera (Hall).

1879. Callopora oculifera. Hall, Thirty-second Ann. Rep. New York State Mus., p. 155 (reprint, 1880, p. 17).

1883. Callopora oculifera. Hall, Rep. State Geologist New York for the year 1882, pl. xiii, 10.

1887. Callopora (Callotrypa) oculifera. Hall and Simpson, Pal. New York, VI, p. 27, pl. xiii, 10, pl. xxiii, 6.

Lower Helderberg: Clarksville, New York.

Callotrypa paucipora (Hall and Simpson).

1887. Callopora (Callotrypa) paucipora. Hall and Simpson, Pal. New York, VI, pl. xxiii, 21. (Not described.)

Lower Helderberg: Clarksville, New York.

Callotrypa striata (Hall and Simpson).

1879. Callopora unispina (in part). Hall, Thirty-second Ann. Rep. New York State Mus., p. 153 (reprint, 1880, p. 15).

1883. Callopora unispina (in part). Hall, Rep. State Geologist New York for the year 1882, pl. xi, 35–41.

1887. Callopora (Callotrypa) striata. Hall and Simpson, Pal. New York, VI, p. 26, pl. xi, 38–41, pl. xxiii, 13, 14.

Lower Helderberg: Catskill Creek and Clarksville, New York.

Callotrypa unispina (Hall).

1874. Callopora unispina. Hall, Twenty-sixth Ann. Rep. New York State Mus., p. 102.

Callotrypa unispina (Hall)—Continued.

1879. Callopora unispina. Hall, Thirty-second Ann. Rep. New York State Mus., p. 153 (reprint, 1880, p. 15).
1883. Callopora unispina. Hall, Rep. State Geologist New York for the year 1882, pl. xi, 35–39, ? 40–41.
1887. Callopora (Callotrypa) unispina. Hall and Simpson, Pal. New York, VI, p. 26, pl. xi, 35–37.
1897. Callotrypa unispina. Simpson, Fourteenth Ann. Rep. New York State Geologist for the year 1894, pl. xviii, 8–11.
Lower Helderberg: Catskill Creek and Clarksville, New York.

Carinopora Nicholson. See Semicoscinium Prout.

Carinopora Hindei Nicholson. See Semicoscinium hindei (Nicholson).

Cavea D'Orbigny. Not a Paleozoic genus.

Cavea prisca Gabb and Horn. See Streblotrypa prisca (Gabb and Horn).

CERAMELLA Hall and Simpson. Genotype: Ceramella scidacea Hall and Simpson.

1887. Ceramella. Hall and Simpson, Pal. New York, VI, p. xix.
1889. Ceramella. Miller, North American Geol. Pal., p. 296.
1897. Ceramella. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 527.
Obs.—This genus is probably a synonym of either Glyptopora Ulrich or Phractopora Hall. The figures and description are insufficient to decide, the specimens being apparently young.

Ceramella scidacea Hall and Simpson.

1887. Ceramella scidacea. Hall and Simpson, Pal. New York, VI, p. 420, pl. lxiv, 5–8.
1897. Ceramella scidacea. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xiv, 2–6.
Hamilton: Spurgen's Glen, Norton's Landing, Cayuga Lake, and Darien Center, New York.

CERAMOPHYLLA Ulrich. Genotype: Ceramophylla frondosa Ulrich.

1893. Ceramophylla. Ulrich, Geol. Minnesota, III, p. 331.

Ceramophylla frondosa Ulrich.

1893. Ceramophylla frondosa. Ulrich, Geol. Minnesota, III, p. 331, pl. xxviii, 3–7.
1896. Ceramophylla frondosa. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 438 (p. 268).
Trenton (Black River): St. Paul and Goodhue County, Minnesota.

CERAMOPORA Hall. Genotype: Ceramopora imbricata Hall.

1852. Ceramopora. Hall, Pal. New York, II, p. 168.
1860. Ceramopora. Eichwald, Lethæa Rossica, I, p. 412.
1882. Ceramopora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 156.
1887. Ceramopora. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 169.
1887. Ceramopora. Hall and Simpson, Pal. New York, VI, p. xviii.
1888. Ceramopora. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 36.
1889. Ceramopora. Miller, North American Geol. Pal., p. 296.
1890. Ceramopora. Ulrich, Geol. Sur. Illinois, VIII, pp. 380, 462.
1896. Ceramopora. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 267.

CERAMOPORA Hall—Continued.

1897. Ceramopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 563.

Ceramopora agellus Hall. See Ceramopora ? confluens Hall.

Ceramopora alternata James. See Cœloclema alternatum (James).

Ceramopora ? beani James. See Paleschara beani (James).

Ceramopora clypeiformis Hall. Not recognized.

1883. Ceramopora (Lichenalia?) clypeiformis. Hall, Trans. Albany Institute, X, p. 188 (abstract, 1881, p. 188).

1884. Lichenalia (Ceramopora) clypeiformis. Hall, Rep. State Geologist New York for the year 1883, p. 37.

Hamilton: York, Moscow, New York.

Ceramopora concentrica James. See Cœloclema concentricum (James).

Ceramopora ? confluens Hall.

1876. Ceramopora confluens. Hall, Twenty-eighth Ann. Rep. New York State Museum (documentary edition), pl. vii, 4, 5; ibid. (Museum edition, 1879), p. 119, pl. viii, 4, 5.

1882. Ceramopora confluens. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 243, pl. vii, 4, 5.

1897. Ceramopora confluens. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xx, 14, 15.

1876. Ceramopora ? (Berenicea) labecula. Hall, Twenty-eighth Ann. Rep. New York State Mus. (documentary edition), pl. viii, 1–3; ibid. (Museum edition), 1879, p. 119, pl. viii, 1–3.

1882. Ceramopora labecula. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 242, pl. vii, 1–3.

1897. Ceramopora labecula. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xx, 11.

1876. Ceramopora agellus. Hall, Twenty-eighth Ann. Rep. New York State Mus. (documentary edition), pl. viii, 6; ibid. (Museum edition), 1879, p. 120, pl. viii, 6.

1882. Ceramopora agellus. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 243, pl. vii, 6.

Niagara: Waldron, Indiana.

Obs. This species is probably a fistuliporoid. C. agellus and C. labecula are apparently young specimens.

Ceramopora ? expansa (James).

1879. Alveolites expansa. James, Paleontologist, No. 3, p. 19.

1887. Ceramopora expansa. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 169; ibid., III, 1888, pl. xvii, 13.

Clinton: Clinton County, Ohio.

Ceramopora ? explanata Hall.

1883. Ceramopora? (Lichenalia?) explanata. Hall, Trans. Albany Institute, X, p. 61 (abstract, 1879, p. 5).

1882. Ceramopora ? (Lichenalia?) explanata. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 245.

Niagara: Waldron, Indiana.

Ceramopora foliacea Hall. See Meekopora foliacea (Hall).

Ceramopora ? (Lichenalia) foliacea Hall and Simpson. See Fistulipora foliacea (Hall).

Ceramopora Huronensis Nicholson. See Fistulipora huronensis (Nicholson).

Ceramopora imbricata Hall.

1852. Ceramopora imbricata. Hall, Pal. New York, II, p. 169, pl. xlE, 1 *a–i*.

1890. Ceramopora imbricata. Ulrich, Geol. Surv. Illinois, VIII, p. 463, pl. xxxix, 1–*b*.

Niagara: Lockport, New York; Osgood, Indiana.

Ceramopora ?? imbricella (Hall).

1883. Lichenalia (Ceramopora) imbricella. Hall, Trans. Albany Institute, X, p. 188 (abstract 1881, p. 188).

1884. Lichenalia (Ceramopora) imbricella. Hall, Rep. State Geologist New York for the year 1883, p. 37.

1887. Ceramopora imbricella. Hall and Simpson, Pal. New York, VI, p. 236.

Hamilton: Near Alden, Erie County, New York.

Obs. It is doubtful whether this form can be recognized from the descriptions given.

Ceramopora ?? incrustans Hall.

1852. Ceramopora incrustans. Hall, Pal. New York, II, p. 169, pl. xlE, 2 *a–d*.

Niagara: Lockport, New York.

Obs. A reexamination of the type specimens of this species will very probably show it to be a species of Fistulipora. In that case it will require renaming, as the name is preoccupied by the genotype of Fistulipora.

Ceramopora ? irregularis James. See Batostoma implicatum (Nicholson).

Ceramopora labecula Hall. See Ceramopora ? confluens Hall.

Ceramopora ? (Berenicea) labecula Hall. See Ceramopora ? confluens Hall.

Ceramopora ? labeculoidea Hall.

1879. Ceramopora labeculoidea. Hall, Thirty-second Ann. Rep. New York State Mus., p. 158 (reprint 1880, p. 20).

1883. Ceramopora labeculoidea. Hall, Rep. State Geologist New York for the year 1882, pl. xvi, 1, 2.

1887. Ceramopora labeculoidea. Hall and Simpson, Pal. New York, VI, p. 33, pl. xvi, 1, 2.

1897. Ceramopora labeculoidea. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xx, 10.

Lower Helderberg: Clarksville, New York.

Obs. This species is probably the young of some fistuliporoid.

Ceramopora ? maculata Hall.

1874. Ceramopora maculata. Hall, Twenty-sixth Ann. Rep. New York State Mus., p. 108.

1879. Ceramopora maculata. Hall, Thirty-second Ann. Rep. New York State Mus., p. 159 (reprint, 1880, p. 21).

1883. Ceramopora maculata. Hall, Rep. State Geologist New York for the year 1882, pl. xvi, 5–11.

1887. Ceramopora maculata. Hall and Simpson, Pal. New York, VI, p. 33, pl. xvi, 5–11.

1897. Ceramopora maculata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xx, 5–9.

Lower Helderberg: Clarksville and Schoharie, New York.

Ceramopora (Berenicea) maxima Hall. Abandoned by the author.

1874. Ceramopora (Berenicea) maxima. Hall, Twenty-sixth Ann. Rep. New York State Mus., p. 109.

1879. Ceramopora (Berenicea) maxima. Hall, Thirty-second Ann. Rep. New York State Mus., p. 159 (reprint, 1880, p. 21.)

1883. Ceramopora (Berenicea) maxima. Hall, Rep. State Geologist New York for the year 1882, pl. xvi, 12.

Lower Helderberg: Schoharie, New York.

Obs. In the Pal. New York, VI, 1887, p. 34, Hall and Simpson say that this name may be dropped from the list of determined species.

Ceramopora nicholsoni (James). See Chiloporella nicholsoni (James).

Ceramopora ? notha Hall.

1883. Ceramopora (Paleschara ?) nothus. Hall, Trans. Albany Institute, X, p. 62 (abstract, 1879, p. 6.)

1882. Ceramopora (Paleschara ?) nothus. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 244.

Niagara: Waldron, Indiana.

Ceramopora (Paleschara ?) nothus Hall. See Ceramopora ? notha Hall.

Ceramopora Ohioensis (Nicholson). See Ceramoporella ohioensis (Nicholson).

Ceramopora ? orbiculata Ringueberg.

1886. Ceramopora orbicutata. Ringueberg, Bull. Buffalo Soc. Nat. Hist., V, p. 19, pl. ii, 13, 13*a*.

Niagara: Lockport, New York.

Ceramopora ? parvicella Hall.

1879. Ceramopora parvicella. Hall, Thirty-second Ann. Rep. New York State Mus., p. 158 (reprint, 1880, p. 20.)

1883. Ceramopora parvicella. Hall, Rep. State Geologist New York for the year 1882, pl. xvi, 3, 4.

1887. Ceramopora ? parvicella. Hall and Simpson, Pal. New York, VI, p. 34, pl. xvi, 3, 4.

1897. Ceramopora parvicella. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xx, 12, 13.

Lower Helderberg: Clarksville, New York.

Ceramopora radiata James. Not recognizable.

1878. Ceramopora radiata. James, Paleontologist, No. 2, p. 12.

Cincinnati: Cincinnati, Ohio

Obs. An examination of the type specimen can alone decide just what form this is, but it is probably a young example of Ceramoporella granulosa-milfordensis (James).

Ceramopora ? raripora Hall.

1883. Ceramopora raripora. Hall, Trans. Albany Institute, X, p. 62 (abstract 1879, p. 6.)

1882. Ceramopora raripora. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 244.

Niagara: Waldron, Indiana.

Ceramopora whitei (James). See Ceramoporella whitei (James).

CERAMOPORELLA Ulrich. Genotype: Ceramoporella distincta Ulrich.

1882. Ceramoporella. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 156.

1889. Ceramoporella. Miller, North American Geol. Pal., p. 297.

CERAMOPORELLA Ulrich—Continued.

1890. Ceramoporella. Ulrich, Geol. Surv. Illinois, VIII, pp. 380, 464.

1893. Ceramoporella. Ulrich, Geol. Minnesota, III, p. 328.

1896. Ceramoporella. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 267.

1897. Ceramoporella. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 564.

Ceramoporella distincta Ulrich.

1890. Ceramoporella distincta. Ulrich, Geol. Surv. Illinois, VIII, p. 464, pl. xxxix, 6, 6*a*.

Not Ceramoporella distincta. Ulrich, Geol. Minnesota, III, 1893, p. 328, pl. xxviii, 13; Zittel's Textb. Pal. (Engl. ed.), 1896, fig. 435 (p. 267); Simpson, Fourteenth Ann. Rep. State Geol. New York for the year 1894, 1897, fig. 130 (p. 565).

Cincinnati (Utica and Lorraine): Cincinnati, Ohio, and vicinity.

Ceramoporella granulosa Ulrich.

1890. Ceramoporella granulosa. Ulrich, Geol. Surv. Illinois, VIII, p. 466, pl. xli, 2, 2*a*.

Cincinnati (Richmond): Wilmington, Illinois; Iron Ridge, Wisconsin; Richmond and Versailles, Indiana; Oxford, Waynesville, and other localities in Ohio.

Obs. Hall and Simpson (Pal. New York, VI, 1887, pl. xiv, 15–17, pl. xxiii, 4) figure the Cincinnati (Utica) form of this as Fistulipora sp.? Figure 17 is incorrect, no vesicles or vesicular tissue being found in this species.

Ceramoporella granulosa-milfordensis James.

1878. Callopora milfordensis. James, Paleontologist, No. 2, p. 11.

1888. Monticulipora (Fistulipora) milfordensis. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 36. pl. i, 7–7*b*.

1896. Monticulipora (Fistulipora) milfordensis. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 122.

Cincinnati (Utica): Milford, Ohio; Cincinnati, Ohio, and vicinity.

Ceramoporella inclusa Ulrich.

1893. Ceramoporella inclusa. Ulrich, Geol. Minnesota, III, p. 329, pl. xxviii, 8–11.

1897. Ceramoporella inclusa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 132 (p. 565).

Trenton (Stones River, Black River, and Trenton): Minneapolis, St. Paul, Cannon Falls, and several localities in Goodhue and Fillmore counties, Minnesota.

Ceramoporella interporosa Ulrich.

1893. Ceramoporella interporosa. Ulrich, Geol. Minnesota, III, p. 330, pl. xxviii, 12.

1897. Ceramoporella interporosa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 131 (p. 565).

Trenton: Goodhue County, Minnesota.

Ceramoporella? irregularis (Whitfield).

1878. Alveolites irregularis. Whitfield, Ann. Rep. Wisconsin Geol. Surv. for 1877, p. 72.

1882. Alveolites irregularis. Whitfield, Geol. Surv. Wisconsin, IV, p. 251, pl. xi, 1, 2.

Cincinnati (Richmond): Iron Ridge, Wisconsin.

Ceramoporella ohioensis (Nicholson).

1875. Ceramopora Ohioensis. Nicholson, Pal. Ohio, II, p. 265, pl. xxv, 10*a*, *b*, *e* (not 10*c*, *d*).

1888. Ceramopora ohioensis. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 37.

1889. Ceramopora ohioensis. Miller, North American Geol. Pal., fig. 466 (p. 297).

1890. Ceramoporella? ohioensis. Ulrich, Geol. Surv. Illinois, VIII, p. 466, pl. xxxix, 2, 2*a*.

Cincinnati (Utica, Lorraine, and Richmond): Cincinnati, Ohio, and vicinity. A common species in the Utica, Lorraine, and Richmond groups of Ohio, Indiana, Kentucky, Tennessee, Illinois, and Wisconsin.

Ceramoporella stellata Ulrich.

1890. Ceramoporella stellata. Ulrich, Geol. Surv. Illinois, VIII, p. 465, pl. xli, 1, 1*a*.

Cincinnati (Richmond): Sterling, Illinois.

Ceramoporella whitei (James).

1878. Ceramopora Whitei. James, Paleontologist, No. 2, p. 12.

1888. Ceramopora? whitei. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 38, pl. i, 9, 9*a*.

Cincinnati (Lorraine and Richmond): Cincinnati, Ohio, and vicinity. Richmond and Versailles, Indiana; Oxford, Waynesville, and other localities in Ohio.

Ceriopora Goldfuss. Not a Paleozoic genus.

Ceriopora constellata Van Cleve (Mss.). See Constellaria constellata (Van Cleve) Dana.

Ceriopora? Hamiltonensis Nicholson. See Streblotrypa hamiltonensis (Nicholson).

Ceriopora ramosa D'Orbigny. Not recognizable without material.

1842. Ceriopora ramosa. D'Orbigny, Voyage dans l'Amérique Méridonale, III, p. 56, pl. vi, 9, 10.

Carboniferous: Yarbichambi, Bolivia.

CHÆTETES Fischer. Genotype Chætetes radians Fischer. Not considered a bryozoan.

1837. Chætetes. Fischer, Oryct. du Gouv. Moscou, p. 159.

Not Chætetes of many authors who have used the name for true bryozoa.

Chætetes abruptus Hall. See Monotrypella? abrupta (Hall).

Chætetes (Monotrypella) abruptus Hall and Simpson. See Monotrypella? abrupta (Hall).

Chætetes æquidistans Hall. Can not be recognized.

1883. Chætetes æquidistans. Hall, Trans. Albany Institute, X, p. 146 (abstract, 1881, p. 4).

Upper Helderberg, New York.

Chætetes approximatus Nicholson. See Callopora dalei (Milne-Edwards and Haime).

Chætetes (Monotrypella) arbusculus Hall. See Monotrypella? arbuscula (Hall).

Chætetes attritus Nicholson. See Dekayia aspera (Milne-Edwards and Haime).

Chætetes Barrandi Nicholson. See Heterotrypa ? barrandei (Nicholson).

Chætetes briareus Nicholson. See Eridotrypa briareus (Nicholson).

Chætetes calyculus James. See Aspidopora calycula (James).

Chætetes ? carbonarius Worthen. See Stenopora carbonaria (Worthen).

Chætetes cincinnatiensis James. See Monticulipora cincinnatiensis (James).

Chætetes ? clathratulus (James) Nicholson. See Escharopora pavonia (D'Orbigny).

Chætetes clavacoideus James. See Leptotrypa clavacoidea (James).

Chætetes colliculatus Hall. See Monotrypa colliculata (Hall).

Chætetes columnaris Hall. Belongs to genus Tetradium, now considered a coral.

1847. Chætetes columnaris. Hall, Pal. New York, I, p. 68, pl. xxiii, 4, *4a*.

Chætetes compressus Ulrich. See Peronopora compressa (Ulrich).

Chætetes consimilis Hall. See Monotrypella ? consimilis (Hall).

Chætetes constellatus Quenstedt. See Constellaria constellata (Van Cleve) Dana.

Chætetes corticans Nicholson. See Spatiopora corticans (Nicholson).

Chætetes corticosa Hall. See Eridotrypa corticosa (Hall).

Chætetes crebriramus Hall. Not recognized.

1883. Chætetes crebriramus. Hall, Trans. Albany Institute, X, p. 146 (abstract, 1881, p. 4).

Hamilton: Falls of the Ohio.

Chætetes crustulatus James. Not recognizable.

1878. Chætetes crustulatus. James, Paleontologist, No. 1, p. 1; ibid., No. 3, 1879, p. 20.

1888. Monticulipora crustulata. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 23, pl. i, 2, *2a*.

1895. Monticulipora crustulata. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 82.

Cincinnati: Cincinnati, Ohio.

Obs. A variety of forms was included under this name, many of which have since been given other names. The description is so general that it can not be narrowed down to one recognizable form; hence, in the interests of science, the name should be dropped.

Chætetes dalei Milne-Edwards and Haime. See Callopora dalei (Milne-Edwards and Haime).

Chætetes dalei Nicholson (not Milne-Edwards and Haime). See Callopora ramosa (D'Orbigny).

Chætetes decipiens Rominger. See Peronopora decipiens (Rominger).

Chætetes delicatulus Nicholson. See Bythopora delicatula (Nicholson).

Chætetes (Monotrypella) densus Hall and Simpson. See Monotrypella ? densa (Hall).

Chætetes discoideus James. See Amplexopora ? discoidea (James).

Chætetes egenus Hall. Not recognized.

1883. Chætetes egenus. Hall, Trans. Albany Institute, X, p. 146 (abstract, 1881, p. 4).

Upper Helderberg: Onondaga Valley, New York.

Chætetes elegans Ulrich. See Discotrypa elegans (Ulrich).

Chætetes ?? expansus Ringueberg.

1886. Chætetes expansus. Ringueberg, Bull. Buffalo Soc. Nat. Hist., V, p. 20, pl. ii, 17.

Niagara: Lockport, New York.

Obs. Probably a valid species, but requires further study to determine generic position.

Chætetes filiasus Milne-Edwards and Haime. See Amplexopora filiosa (D'Orbigny).

Chætetes Fletcheri Nicholson (not Milne-Edwards and Haime). See Dekayella ulrichi (Nicholson).

Chætetes Fletscheri Quenstedt (not Milne-Edwards and Haime). See Dekayella ulrichi (Nicholson).

Chætetes frondosus Milne-Edwards and Haime. See Heterotrypa frondosa (D'Orbigny).

Chætetes frondosus Nicholson (not D'Orbigny). See Peronopora decipiens (Rominger).

Chætetes frondosus Quenstedt. See Peronopora decipiens (Rominger) and Heterotrypa frondosa (D'Orbigny).

Chætetes frondosus limatus Quenstedt. See Heterotrypa frondosa (D'Orbigny).

Chætetes fruticosus Hall. (Lower Helderberg.) Name preoccupied. See Monotrypella? arbuscula (Hall).

Chætetes fruticosus Hall (Hamilton). Can not be recognized.

1876. Chætetes fruticosus. Hall, Illus. Devonian Foss., pl. xxxviii, 1–5. (Not described.)

1899. Monotrypa fruticosa. (Hall's species ?) Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 136, fig. 20.

Hamilton: Canandaigua Lake and Eighteenmile Creek, New York.

Chætetes furcatus Hall. Can not be recognized.

1876. Chætetes furcatus. Hall, Illus. Devonian Foss., pl. xxxvii, 1–5, pl. xxxviii, 6–9. (Not described.)

1899. Monotrypa? furcata. (Hall's species ?) Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 137, fig. 21.

Hamilton: Norton's Landing and Eighteenmile Creek, New York.

Chætetes fusiformis Whitfield. See Lioclemella fusiformis (Whitfield).

Chætetes gracilis James. See Bythopora gracilis (Nicholson).

Chætetes granuliferus Ulrich. See Homotrypella granulifera (Ulrich).

Chætetes ?? hamiltonensis Winchell.

1866. Chætetes Hamiltonensis. Winchell, Rep. Low. Penin. Michigan, p. 89.

Hamilton, Petoskey, Michigan.

Obs. A valid species, but requires further investigation to determine its generic position.

Chætetes Helderbergiæ Hall. See Monotrypa ? helderbergiæ (Hall).

Chætetes humilis Hall. Can not be recognized.

1876. Chætetes humilis. Hall, Illus. Devonian Foss., pl. xxxvii, 11–15. (Not described.)

1881. Chætetes humilis. Quenstedt, Roehren- und Sternkorallen, p. 69, pl. cxlv, 34.

Upper Helderberg: Western New York.

Chætetes implicata Ulrich. See Batostoma implicatum (Nicholson).

Chætetes internascens Hall. Not recognized.

1883. Chætetes ? (Trematopora?) internascens. Hall, Trans. Albany Institute, X, p. 147 (abstract, 1881, p. 5).

Hamilton: Falls of the Ohio.

Chætetes irregularis Ulrich. See Leptotrypa ? irregularis (Ulrich).

Chætetes Jamesi Nicholson. See Batostoma jamesi (Nicholson).

Chætetes læviramus Quenstedt. See Bythopora gracilis (Nicholson).

Chætetes lycoperdon (Say) Hall. Not recognizable.

—— Chætetes lycoperdon. Say (Mss.).

1847. Chætetes lycoperdon. Hall, Pal. New York, I, p. 64, pl. xxiii, 1*a–i*, pl. xxiv, 1*a–o*, 2, 2*a*, 3; ibid., p. 48, pl. xii, 3, 5; ibid., p. 276, pl. lxxv, 2*a–f*.

1852. Chætetes lycoperdon. Hall, Pal. New York, II, p. 40, pl. xvii, 1*a–h*.

1874. Chætetes lycoperdon. Nicholson and Hinde, Canadian Jour., new ser., XIV, p. 140.

1881. Chætetes lycoperdon. Quenstedt, Roehren– und Sternkorallen, p. 71, pl. cxlvi, 1, 2.

Trenton.

Obs. The term lycoperdon has deservedly fallen into disuse. As it was never properly defined and limited, the name came to be used by many authors for any and every kind of bryozoan, especially if it had a hemispheric or globose shape.

Chætetes lycoperdon James (not Hall).

1878. Chætetes lycoperdon. James, Paleontologist, No. 2, p. 11.

1879. Chætetes lycopodites (not Vanuxem). James, Paleontologist, No. 3, p. 20.

Cincinnati: Cincinnati, Ohio.

Obs. The form thus referred by James can not be identified.

Chætetes lycopodites James (not Vanuxem). See Chætetes lycoperdon James (not Hall).

Chætetes mammulatus Milne-Edwards and Haime. See Monticulipora mammulata (D'Orbigny).

Chætetes mammulatus Nicholson (not D'Orbigny). See Heterotrypa frondosa (D'Orbigny).

Chætetes mammulatus Quenstedt (not D'Orbigny).

1881. Chætetes mammulatus. Quenstedt, Roehren- und Sternkorallen, p. 75, pl. cxlvi, 10, 11 (not 12).

Cincinnati (Richmond): Richmond, Indiana.

Obs. This is a species that has not yet been described.

Chætetes meeki James. See Bythopora meeki (James).

Chætetes ?? microscopicus Winchell.

1866. Chætetes microscopicus. Winchell, Rep. Low. Penin. Michigan, p. 90.

Hamilton: Petoskey, Michigan.

Chætetes ?? microscopicus Winchell—Continued.

1866. Obs. A valid species, but further investigation is needed to determine generic position.

Chætetes minutus James. See Bythopora delicatula (Nicholson).

Chætetes moniliformis Nicholson. See Heterotrypa ? moniliformis (Nicholson).

Chætetes monticulatus Hall. See Monotrypa monticulata (Hall).

Chætetes muscatinensis White. Not a bryozoan.

1876. Chætetes Muscatinensis. White, Proc. Acad. Nat. Sci. Philadelphia, p. 27.
Hamilton: Muscatine, Iowa.

Chætetes Newberryi Nicholson. See Aspidopora newberryi (Nicholson).

Chætetes nodulosus Nicholson. See Callopora nodulosa (Nicholson).

Chætetes ? O'Nealli James. See Callopora onealli (James).

Chætetes Ortoni Nicholson. See Atactoporella ortoni (Nicholson).

Chætetes papillatus Nicholson (not McCoy).

1874. Chætetes papillatus Nicholson (not McCoy). Nicholson, Quar. Jour. Geol. Soc. London, XXX, p. 513, pl. xxix, 12–12*b*.

1875. Chætetes papillatus (not McCoy). Nicholson, Pal. Ohio, II, p. 210.
Cincinnati: Cincinnati, Ohio.
Obs. The form so referred can not be identified with certainty from Nicholson's description and figures, but it was probably a species of Petigopora, possibly the P. asperula Ulrich.

Chætetes pavonia Milne-Edwards and Haime. See Escharopora pavonia (D'Orbigny).

Chætetes petechialis Nicholson. See Petigopora petechialis (Nicholson).

Chætetes petropolitanus James (not Pander).

1878. Chætetes petropolitanus. James, Paleontologist, No. 2, p. 11.
Cincinnati: Cincinnati, Ohio.
Obs. The form so referred by James is probably Amplexopora petasiformis (Nicholson).

Chætetes petropolitanus Meek and Worthen (not Pander).

1868. Chætetes petropolitanus Pander (?). Meek and Worthen, Geol. Surv. Illinois, III, p. 304, pl. ii, 8*a*, *b*.
Trenton: Scales Mound, Illinois.
Obs. Further investigation is needed to determine what the form is which Meek and Worthen referred as above.

Chætetes petropolitanus Nicholson (in part). See Mesotrypa whiteavesi (Nicholson).

Chætetes petropolitanus of various authors (not Pander).

Obs. A great variety of forms agreeing in having a discoid or hemispheric shape and differing, often greatly, in internal structure, has been confused under this name. Without an examination of the various specimens, no synonymy can be given.

Chætetes ?? ponderosus Rominger.

1892. Chætetes ponderosus. Rominger, American Geologist, X, p. 58, pl. iii, 4–8.
Hamilton: Falls of the Ohio.

Chætetes pulchellus Nicholson (not Milne-Edwards and Haime). See Callopora andrewsi (Nicholson).

Chætetes quadrangularis Nicholson. See Leptotrypa ? quadrangularis (Nicholson).

Chætetes quadratus Rominger. See Monotrypella quadrata (Rominger).

Chætetes ramosus Milne-Edwards and Haime. See Callopora ramosa (D'Orbigny).

Chætetes rhombicus Nicholson. See Monotrypella quadrata (Rominger).

Chætetes ?? rugosus Hall.

1847. Chætetes rugosus. Hall., Pal. New York, I, p. 67, pl. xxiv, 2*a*, *b*.
Trenton: Middleville, Herkimer County, New York.
Obs. The generic position can not be determined from the description and figures given.

Chætetes rugosus Milne-Edwards and Haime. See Callopora rugosa (Milne-Edwards and Haime).

Chætetes sigillarioides Nicholson. See Callopora onealli-sigillarioides (Nicholson).

Chætetes spherica Hall. See Monotrypa spherica (Hall).

Chætetes subglobosa Ulrich. See Monotrypa turbinata (James).

Chætetes subpulchellus Nicholson. See Heterotrypa subpulchella (Nicholson).

Chætetes subrotundus James. Not a bryozoan.

1878. Chætetes subrotundus. James, Paleontologist, No. 2, p. 11.

Chætetes tabulatus Hall. See Monotrypa tabulata (Hall).

Chætetes (Ptychonema) tabulatus Hall and Simpson. See Monotrypa tabulata (Hall).

Chætetes ?? tenuis Hall.

1876. Chætetes tenuis. Hall, Illus. Devonian Foss., pl. xxxvii, 6-10. (Not described.)
1892. Monotrypa tennis (in error for tenuis). Rominger, American Geologist, X, p. 60, pl. iii, 1–3.
Upper Helderberg: Genesee County, New York (Hall).
Hamilton: Falls of the Ohio (Rominger).

Chætetes tuberculatus Milne-Edwards and Haime. See Spatiopora tuberculata (Milne-Edwards and Haime).

Chætetes tuberculatus Nicholson (not Milne-Edwards and Haime). See Spatiopora corticans (Nicholson).

Chætetes turbinatum James. See Monotrypa turbinata (James).

Chætetes undulatus Nicholson. See Monotrypa undulata (Nicholson).

Chætetes varians James. See Batostoma varians (James).

Chætetes venustus Ulrich. See Crepipora venusta (Ulrich).

CHAINODICTYON Foerste. Genotype: Chainodictyon laxum Foerste.

1887. Chainodictyon. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 81.
1889. Chainodictyon. Miller, North American Geol. Pal., p. 297.
1890. Chainodictyon. Ulrich, Geol. Surv. Illinois, VIII, pp. 399, 640.

Chainodictyon laxum Foerste.

1887. Chainodictyon laxum. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 81, pl. vii, 8*a*–*c*.

Lower Coal Measures: Flint Ridge, Ohio; Seville, Illinois.

Chainodictyon laxum-minor Ulrich.

1890. Chainodictyon laxum var. minor. Ulrich, Geol. Surv. Illinois, VIII, p. 640, pl. lxii, 3, 3*a*.

Lower Coal Measures: Seville, Illinois.

Cheiloporella. See Chiloporella.

Cheilotrypa. See Chilotrypa.

CHILOPORELLA Ulrich. Genotype: Fistulipora flabellata Ulrich = Ceramopora Nicholsoni James.

1882. Cheiloporella. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 157.

1889. Chiloporella. Miller, North American Geol. Pal., p. 297.

1890. Chiloporella. Ulrich, Geol. Surv. Illinois, VIII, p. 381.

1897. Chiloporella. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 565.

Chiloporella flabellata Ulrich. See Chiloporella nicholsoni (James).

Chiloporella nicholsoni (James).

1875. Ceramopora Nicholsoni. James, Catal. Foss. Cincinnati Group, p. 3.

1888. Monticulipora (Fistulipora) nicholsoni. James and James, Jour. Cincinati Soc. Nat. Hist., XI, p. 34, pl. i, 6–6*c*.

1896. Monticulipora (Fistulipora) nicholsoni. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 121, fig. 12.

1878. Fistulipora? multipora. James, Paleontologist, No. 1, p. 2.

1879. Fistulipora Siluriana. James, Paleontologist, No. 3, p. 19.

1879. Fistulipora flabellata. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 28, pl. vii, 26–26*b*.

1890. Chiloporella flabellata. Ulrich, Geol. Surv. Illinois, VIII, p. 381, pl. xxxix, 5–5*b*.

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

CHILOTRYPA Ulrich. Genotype: Chilotrypa hispida Ulrich.

1884. Cheilotrypa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 49.

1889. Chilotrypa. Miller, North American Geol. Pal., p. 297.

1890. Chilotrypa. Ulrich, Geol. Surv. Illinois, VIII, p. 382.

1896. Chilotrypa. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 269.

1897. Chilotrypa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 554.

Chilotrypa camerata (Hall).

1883. Trematopora camerata. Hall, Rep. State Geologist New York for the year 1882, pl. (26) xxiv, 9, 10.

1887. Diamesopora camerata. Hall and Simpson, Pal. New York, VI, p. 72, pl. xxvi, 9, 10.

1897. Diamesopora camerata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xvi, 3–5.

Upper Helderberg: Near Caledonia, New York.

Chilotrypa ? coalescens (Hall).

1852. Trematopora coalescens. Hall, Pal. New York, II, p. 150, pl. xlA, 2*a*, *b*.

Niagara: Lockport, New York.

Chilotrypa constricta (Hall).

1874. Trematopora constricta. Hall, Twenty-sixth Ann. Rep. New York State Mus., p. 104.

1879. Trematopora ? constricta. Hall, Thirty-second Ann. Rep. New York State Mus., p. 150 (reprint, 1880, p. 12).

1883. Trematopora ? constricta. Hall, Rep. State Geologist New York for the year 1882, pl. x, 14–19.

1887. Diamesopora constricta. Hall and Simpson, Pal. New York, VI, p. 19, pl. x, 14–19, pl. xxiiiA, 7.

Lower Helderberg: Clarksville, New York.

Obs. See also Chilotrypa dispersa (Hall).

Chilotrypa dispersa (Hall).

1879. Trematopora dispersa. Hall, Thirty-second Ann. Rep. New York State Mus., p. 150 (reprint, 1880, p. 12).

1883. Trematopora dispersa. Hall, Rep. State Geologist New York for the year 1882, pl. x, 20, 21.

1887. Diamesopora dispersa. Hall and Simpson, Pal. New York, VI, p. 20, pl. x, 20, 21.

Lower Helderberg: Clarksville, New York.

Obs. The form is probably a synonym for Chilotrypa constricta (Hall).

Chilotrypa hispida (Ulrich).

1884. Cheilotrypa hispida. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 50, pl. iii, 6–6*d*.

Chester: Sloans Valley, Grayson Springs, and Stephensport, Kentucky; Chester and many other localities in Illinois.

Chilotrypa ostiolata (Hall).

1852. Trematopora ostiolata. Hall, Pal. New York, II, p. 152, pl. xlA, 5*a–m*.

1875. Trematopora ostiolata. Nicholson, Pal. Province Ontario, p. 60, fig. 26. (Perhaps not the same form.)

1884. Cheilotrypa ostiolata. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, pl. iii, 7, 7*a*.

1897. Chilotrypa ostiolata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxi, 1, 2.

Niagara: Lockport and Rochester, New York; Hamilton and Niagara River, Ontario.

Chilotrypa varia (Hall).

1876. Trematopora varia. Hall, Twenty-eighth Ann. Rep. New York State Mus. (documentary edition), pl. x, 15–23; ibid. (Museum edition), 1879, p. 111, pl. x, 15–23.

1882. Trematopora varia. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 232, pl. ix, 15–23.

1890. Diamesopora varia. Ulrich, Geol. Surv. Illinois, VIII, p. 467.

Niagara: Waldron, Indiana.

Chilotrypa variolata (Hall).

1876. Trematopora variolata. Hall, Twenty-eighth Ann. Rep. New York State Mus. (documentary edition), pl. xi, 9, 10; ibid. (Museum edition, 1879), p. 113, pl. xi, 9, 10.

1882. Trematopora variolata. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 234, pl. x, 9, 10.

Niagara: Waldron, Indiana.

CLATHROPORA Hall. Genotype: Clathropora frondosa Hall.

1852. Clathropora. Hall, Pal. New York, II, p. 159.
1874. Clathropora. Nicholson, Geol. Mag., dec. 2, I, p. 124.
1874. Clathropora. Nicholson, Pal. Province Ontario, p. 111.
1882. Clathropora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 152.
1884. Clathropora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 39.
1887. Clathropora. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 153.
1889. Clathropora. Miller, North American Geol. Pal., p. 297.
1890. Clathropora. Ulrich, Geol. Surv. Illinois, VIII, p. 392.
1896. Clathropora. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 279.
1897. Clathropora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 543.

Clathropora ? alcicornis Hall.

1852. Clathropora alcicornis. Hall, Pal. New York, II, p. 159, pl. xlB, 4*a–c*.
Niagara: Lockport, New York.

Clathropora carinata Hall. See Coscinium cribriforme (Prout).

Clathropora clintonensis Hall and Whitfield. See Clathropora frondosa-clintonensis Hall and Whitfield.

Clathropora flabellata Hall. See Stictoporella flabellata (Hall).

Clathropora frondosa Hall.

1852. Clathropora frondosa. Hall, Pal. New York, II, p. 160, pl. xlB, 5*a–e*.
1874. Clathropora frondosa. Nicholson and Hinde, Canadian Jour., new ser., XIV, p. 139.
1875. Clathropora frondosa. Nicholson, Pal. Province Ontario, p. 59.
1882. Clathropora frondosa. (Van Cleve) White, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 385, pl. lv, 3.
1887. Clathropora frondosa. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 154; ibid., III, 1888, pl. xv, 3.
1889. Clathropora frondosa. Miller, North American Geol. Pal., fig. 467 (p. 297).
1895. Clathropora frondosa. Foerste, Geol. Surv. Ohio, VII, p. 598, pl. xxviii, 3.
1897. Clathropora frondosa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 104 (p. 544).
Clinton: Dayton and Centerville, Ohio.
Niagara: Lockport, New York; Thorold, Ontario.

Clathropora frondosa-clintonensis Hall and Whitfield.

1875. Clathropora clintonensis. Hall and Whitfield, Pal. Ohio, II, p. 113, pl. v, 7.
1887. Clathropora clintonensis. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 154; ibid., III, 1888, pl. xv, 4.
1895. Clathropora clintonensis. Foerste, Geol. Surv. Ohio, VII, p. 598, pl. xxviii, 4.
Clinton: Dayton and Fair Haven, Ohio.

Clathropora ? gracilis Spencer. Not recognizable.

1884. Clathropora ? gracilis. Spencer, Trans. St. Louis Acad. Sci., IV, p. 604. pl. vii, 4.
1884. Clathropora ? gracilis. Spencer, Bull. Mus. State Univ. Missouri, I, p. 54, pl. vii, 4.
Niagara: Hamilton, Ontario.

Clathropora intermedia Nicholson and Hinde.

1874. Clathropora intermedia. Nicholson and Hinde, Canad. Jour., new ser., XIV, p. 140, fig. 5.

Clathropora intermedia Nicholson and Hinde—Continued.

1875. Clathropora intermedia. Nicholson, Pal. Province Ontario, p. 59, fig. 29*a*, *b*.
Niagara: Thorold, Ontario.

Clathropora intertexta Nicholson.

1874. Clathropora intertexta. Nicholson, Geol. Mag., new ser., I, p. 125, fig. 15.
1874. Clathropora intertexta. Nicholson, Pal. Province Ontario, p. 112, fig. 49.
1875. Clathropora intertexta. Nicholson, Pal. Province Ontario, p. 60.
1859. Coscinium cyclops. Prout (not Keyserling), Trans. St. Louis Acad. Sci., I, p. 268.
Upper Helderberg (Hamilton ?): Port Jarvis, Ontario; Utica, Indiana; Columbus, Ohio.

Clathropora striatura Hall. See Coscinium striaturum (Hall).

CLONOPORA Hall. Genotype: Clonopora semireducta Hall.

1883. Clonopora. Hall, Trans. Albany Institute, X, p. 162 (abstract, 1881, p. 20).
1887. Clonopora. Hall and Simpson, Pal. New York, VI, p. xxv.
1889. Clonopora. Miller, North American Geol. Pal., p. 298.
1897. Clonopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 598.

Clonopora fasciculata Hall and Simpson.

1887. Clonopora fasciculata. Hall and Simpson, Pal. New York, VI, p. 289, pl. lxvi, 1, 2.
Upper Helderberg: Onondaga Valley, New York.

Clonopora incurva Hall.

1883. Clonopora incurva. Hall, Trans. Albany Institute, X, p. 162 (abstract, 1881, p. 20).
1887. Clonopora incurva. Hall and Simpson, Pal. New York, VI, p. 289, pl. lxvi, 5, 6.
1897. Clonopora incurva. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxv, 6.
Upper Helderberg: Manlius, New York.

Clonopora semireducta Hall.

1883. Clonopora semireducta. Hall, Trans. Albany Institute, X, p. 162 (abstract, 1881, p. 20).
1887. Clonopora semireducta. Hall and Simpson, Pal. New York, VI, p. 289, pl. lxvi, 3, 4.
1897. Clonopora semireductus. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxv, 7.
Hamilton: Falls of the Ohio.

CŒLOCAULIS Hall and Simpson. Genotype: Callopora venusta Hall.

1887. Cœlocaulis (n. s. g.). Hall and Simpson, Pal. New York, VI, pp. xvi, 23.
1889. Cœlocaulis. Miller, North American Geol. Pal., p. 298.
1897. Cœlocaulis. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 554.

Cœlocaulis ?? aculeolata (Hall).

1883. Callopora aculeolata. Hall, Trans. Albany Institute, X, p. 149 (abstract, 1881, p. 7).
1883. Callopora aculeolata. Hall, Rep. State Geologist New York for the year 1882, pl. (26) xxiv, 16, 17.
1887. Callopora (Cœlocaulis) aculeolata. Hall and Simpson, Pal. New York, VI, p. 76, pl. xxvi, 16, 17.
Upper Helderberg: New York.

Cœlocaulis ?? hyale (Hall).

1874. Callopora Hyale. Hall, Twenty-sixth Ann. Rep. New York State Mus., p. 100.
1879. Callopora Hyale. Hall, Thirty-second Ann. Rep. New York State Mus., p. 155 (reprint, 1880, p. 17).
1883. Callopora Hyale. Hall, Rep. State Geologist New York for the year 1882, pl. xii, 18, 19.
1887. Callopora (Cœlocaulis) Hyale. Hall and Simpson, Pal. New York, VI, p. 76, pl. xii, 18, 19.

Upper Helderberg: Central New York.

Obs. This is probably a parasitic species of Fistulipora.

Cœlocaulis ? irregularis (Hall).

1883. Callopora irregularis. Hall, Trans. Albany Institute, X, p. 148 (abstract, 1881, p. 7).
1883. Trematopora (Callopora) irregularis. Hall, Rep. State Geologist New York for the year 1882, pl. (26) xxiv, 11–15.
1887. Callopora (Cœlocaulis) irregularis. Hall and Simpson, Pal. New York, VI, p. 76, pl. xxvi, 11–15.

Upper Helderberg: New York.

Cœlocaulis ? mediopora (Hall).

1879. Callopora parasitica (in part). Hall, Thirty-second Ann. Rep. New York State Mus., p. 157 (reprint, 1880, p. 19).
1883. Callopora parasitica (in part). Hall, Rep. State Geologist New York for the year 1882, pl. xiv, 18.
1887. Callopora (Cœlocaulis) mediopora. Hall and Simpson, Pal. New York, VI, p. 23, pl. xiv, 18, pl. xxiii A, 11–13.

Lower Helderberg: Near Clarksville, New York.

Cœlocaulis venusta (Hall).

1874. Callopora venusta. Hall, Twenty-sixth Ann. Rep. New York State Mus., p. 101.
1879. Callopora venusta. Hall, Thirty-second Ann. Rep. New York State Mus., p. 155 (reprint, 1880, p. 17).
1883. Callopora venusta. Hall, Rep. State Geologist New York for the year 1882, pl. xii, 20–24.
1887. Callopora (Cœlocaulis) venusta. Hall and Simpson, Pal. New York, VI, p. 23, pl. xii, 20–24; pl. xxiii A, 1–3, ? 4, 5.
1897. Cœlocaulis venusta. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxi, 3–5.

Lower Helderberg: Clarksville, New York.

CŒLOCLEMA Ulrich. Genotype: Diamesopora vaupeli Ulrich = Ceramopora alternata James.

1882. Cœloclema. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 137; ibid., VII, 1884, p. 49. (Not defined.)
1890. Diamesopora (in part). Ulrich, Geol. Surv. Illinois, VIII, pp. 380, 467.
1893. Diamesopora (in part). Ulrich, Geol. Minnesota, III, p. 330.
1896. Diamesopora. Ulrich, Zittel's Textb. Pal. (Eng. ed.), p. 268.

Obs. Cœloclema Ulrich (not defined) was abandoned in favor of Diamesopora Hall, under the mistaken belief that Diamesopora dichotoma Hall was congeneric with the D. vaupeli Ulrich. As our generic diagnoses show, the two genera are not at all related.

Cœloclema alternatum (James).

1878. Ceramopora alternata. James, Paleontologist, No. 1, p. 5.

Cœloclema alternatum (James)—Continued.

1888. Monticulipora (Fistulipora) alternata. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 34, pl. i, 5–5*b*.

1890. Diamesopora vaupeli. Ulrich, Geol. Surv. Illinois, VIII, p. 468, pl. xxxix, 3, 3*b*, pl. xli, 4–4*c*.

Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

Cœloclema concentricum (James).

1878. Ceramopora concentrica. James, Paleontologist, No. 1, p. 5.

1888. Ceramopora concentrica. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 38, pl. i, 8, 8*a*.

1890. Diamesopora communis. Ulrich, Geol. Surv. Illinois, VIII, p. 469, pl. xxxix, 3*a*, pl. xli, 5–5*b*.

Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

Cœloclema imbricata Ulrich. See Diamesopora subimbricata (Hall).

Cœloclema infrequens Ulrich. See Diamesopora infrequens (Hall).

Cœloclema osculum Ulrich. See Diamesopora osculum (Hall).

Cœloclema oweni (James).

1884. Fistulipora oweni. James, Jour. Cincinnati Soc. Nat. Hist., VII, p. 21, fig. 2–2*g*.

1888. Monticulipora (Fistulipora) oweni. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 34.

1890. Diamesopora oweni. Ulrich, Geol. Surv. Illinois, VIII, p. 467.

1896. Monticulipora (Fistulipora) oweni. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 119.

Cincinnati (Lorraine): Lebanon, Hamilton, and Cincinnati, Ohio.

Cœloclema trentonense (Ulrich).

1893. Diamesopora trentonensis. Ulrich, Geol. Minnesota, III, p. 330, pl. xxviii, 14.

1896. Diamesopora trentonensis. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 439 (p. 268).

Trenton: St. Paul and Cannon Falls, Minnesota; Trenton Falls, New York; Ottawa, Canada.

CŒLOCONUS Ulrich. Genotype: Cœloconus rhombicus Ulrich.

1890. Cœloconus. Ulrich, Geol. Surv. Illinois, VIII, pp. 402, 664.

1889. Cœloconus. (Ulrich, in press), Miller, North American Geol. Pal., p. 298.

1896. Cœloconus. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 281.

1897. Cœloconus. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 549.

Cœloconus granosus Ulrich.

1890. Cœloconus granosus. Ulrich, Geol. Surv. Illinois, VIII, p. 665, pl. lxxii, 3–3*b*.

1897. Cœloconus granosus. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 117 (p. 549).

Chester: Anna, Chester, and Red Bud, Illinois.

Cœloconus rhombicus Ulrich.

1890. Cœloconus rhombicus. Ulrich, Geol. Surv. Illinois, VIII, p. 664, pl. lxxii, 4–4*c*.

1897. Cœloconus rhombicus. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 118 (p. 549).

Warsaw: Near Waterloo, Illinois.

CONSTELLARIA Dana. Genotype: Ceriopora constellata (Van Cleve (Mss.)) Dana.

1846. Constellaria. Dana, Zoophyta, p. 537.
1875. Constellaria. Nicholson, Pal. Ohio, II, p. 214.
1879. Constellaria. Nicholson, Pal. Tab. Corals, p. 292.
1881. Constellaria. Nicholson, Genus Monticulipora, p. 97.
1882. Constellaria. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 156.
1883. Constellaria. Ulrich, Jour. Cincinnati Soc. Nat., Hist., VI, p. 265.
1888. Constellaria. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 29.
1890. Constellaria. Ulrich, Geol. Surv. Illinois, VIII, pp. 374, 423.
1893. Constellaria. Ulrich, Geol. Minnesota, III, p. 311.
1896. Constellaria. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 276.
1896. Constellaria. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 117.
1860. Stellipora. Milne-Edwards, Hist. Nat. des Corall., III, p. 281.
1877. Stellipora (in part). Dybowski, Die Chæteiden d. Ostbalt. Silur-Form., p. 42.

Constellaria antheloidea of various authors (not Hall). See Constellaria constellata (Van Cleve) Dana.

Constellaria constellata (Van Cleve) Dana.

——. Ceriopora constellata. Van Cleve (Mss.), Plates of Fossils.
1846. Constellaria constellata. Dana, Zoophyta, p. 537, pl. lii, 6*a*, *b*.
1881. Chætetes constellatus. Quenstedt, Roehren- und Sternkorallen, p. 79, pl. cxlvi, 21–25.
1850. Stellipora antheloidea (not of Hall). D'Orbigny, Prodr. de Pal., I, p. 22.
1851. Constellaria antheloidea (not of Hall). Milne-Edwards and Haime, Pol. Foss. Terr. Pal., p. 279, pl. xx, 7, 7*b*.
1860. Stellipora antheloidea (not of Hall). Milne-Edwards, Hist. Nat. des Corall., III, p. 281.
1866. Hellipora (Constellaria) antheloidea (not of Hall). Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 118.
1875. Constellaria antheloidea (not of Hall). Nicholson, Pal. Ohio, II, p. 214.
1876. Constellaria antheloidea (not of Hall). Nicholson, Ann. Mag. Nat. Hist., ser. 4, XVIII, p. 92, pl. v, 10.
1878. Constellaria antheloidea (not of Hall). James, Paleontologist, No. 2, p. 13.
1879. Constellaria antheloidea (not of Hall). Nicholson, Pal. Tab. Corals, p. 301, pl. xiv, 5, 5*b*.
1882. Constellaria antheloidea (not of Hall). (Van Cleve) White, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 379, pl. xlvi, 1–3.
1882. Constellaria florida. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 257; ibid., VI, 1883, p. 267, pl. xiv, 2–2*f*.
1896. Constellaria florida. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 461 (p. 276).
1888. Monticulipora (Constellaria) polystomella (not of Nicholson), (in part). James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 30.
1896. Monticulipora (Constellaria) polystomella (not of Nicholson), (in part). J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 118.

Cincinnati (Lorraine): Cincinnati, Ohio. A common fossil in the Lorraine beds of Ohio, Indiana, Kentucky, and Tennessee.

Constellaria constellata-plana Ulrich.

1883. Constellaria florida var. plana. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 269, pl. xiv, 4.

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

Constellaria constellata-prominens Ulrich.

1883. Constellaria florida var. prominens. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 269, pl. xiv, 3.

Cincinnati (Utica and Lorraine): Cincinnati, Ohio, and vicinity.

Constellaria fischeri Ulrich.

1883. Constellaria fischeri. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 270, pl. xiv, 6–6*c*.

Trenton: Winchester, Kentucky; Nashville, Tennessee. Formation and locality are given erroneously with the description.

Constellaria florida Ulrich. See Constellaria constellata (Van Cleve) Dana.

Constellaria florida var. plana Ulrich. See Constellaria constellata-plana Ulrich.

Constellaria florida var. prominens Ulrich. See Constellaria constellata-prominens Ulrich.

Constellaria limitaris (Ulrich).

1879. Stellipora limitaris. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 126, pl. xii, 8–8*c*.

1883. Constellaria limitaris. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 269, pl. xiv, 5, 5*a*.

Cincinnati (Richmond): Clarksville, Blanchester, Waynesville, and other localities in Ohio; Versailles and Weisburg, Indiana.

Constellaria parva Ulrich.

1890. Constellaria parva. Ulrich, Geol. Surv. Illinois, VIII, p. 424, pl. xxxiv, 1–1*b*.

1896. Monticulipora (Constellaria) parva. J. F. James, Jour. Cincinnati Soc. Nat. Hist. XVIII, p. 119.

Cincinnati (Richmond): Wilmington, Illinois.

Constellaria polystomella Nicholson.

1875. Constellaria polystomella. Nicholson, Pal. Ohio, II, p. 215, pl. xxii, 7, 7*a*.

1882. Constellaria polystomella. Whitfield, Geol. Surv. Wisconsin, IV, p. 257, pl. xii, 3, 4.

1896. Monticulipora (Constellaria) polystomella (in part). J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 118.

Cincinnati (Richmond): Delafield, Wisconsin; Wilmington, Illinois; Richmond and Versailles, Indiana; Blanchester, Waynesville, and other localities in Ohio.

Obs. Nicholson erroneously records this characteristic fossil of the Richmond beds as from Cincinnati, Ohio.

Constellaria punctata (Whitfield).

1878. Monticulipora punctata. Whitfield, Ann. Rep. Wisconsin Geol. Surv. for 1887, p. 71.

1882. Monticulipora punctata. Whitfield, Geol. Surv. Wisconsin, IV, p. 249, pl. xi, 3, 4.

Cincinnati (Richmond): Delafield and Iron Ridge, Wisconsin.

Constellaria varia Ulrich.

1893. Constellaria varia. Ulrich, Geol. Minnesota, III, p. 311, pl. xxi, 1–7.

Trenton: Cannon Falls, Minnesota; Belleville, Canada; Belfast, Tennessee.

COSCINELLA Hall and Simpson. Genotype: Coscinella elegantula Hall and Simpson.

1887. Coscinella. Hall and Simpson, Pal. New York, VI, p. xix.
1889. Coscinella. Miller, North American Geol. Pal., p. 298.
1897. Coscinella. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 534.

Obs. Ulrich unites this genus with Intrapora. It seems better to hold it for forms agreeing with Intrapora in zoœcial structure, but differing in the mode of growth by forming a regular network of anastomosing branches with rounded fenestrules.

Coscinella cosciniformis (Nicholson).

1875. Ptilodictya cosciniformis. Nicholson, Geol. Mag., new ser., II, p. 35, pl. ii, 2–2*b*.
1875. Ptilodictya cosciniformis. Nicholson, Pal. Province Ontario, p. 80, pl. ii, 2*a*, 2*b*.
1887. Coscinium cosciniforme. Hall and Simpson, Pal. New York, VI, p. 239.
Hamilton: Arkona, Ontario.
1889. Coscinella cosciniformis. Miller, North American Geol. Pal., p. 298.
1890. Intrapora cosciniformis. Ulrich, Geol. Surv. Illinois, VIII, p. 532, pl. xliii, 6, 6*a*.
1898. Intrapora cosciniformis. Whiteaves, Contr. Canad. Pal., I, p. 376.

Coscinella elegantula Hall and Simpson.

1887. Coscinella elegantula. Hall and Simpson, Pal. New York, VI, p. 239, pl. lxiv, 9–12.
1897. Coscinella elegantula. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xiv, 7–12.
1898. Intrapora elegantula. Whiteaves, Contr. Canad. Pal., I, p. 376.
Hamilton: Widder, Ontario.

COSCINIUM Keyserling. Genotype: Coscinium cyclops Keyserling.

1846. Coscinium. Keyserling, Reise in das Petschora Land, p. 191.
1858. Coscinium. Prout, Trans. St. Louis Acad. Sci., I, p. 266.
1860. Coscinium. Eichwald, Lethæa Rossica, I, p. 397.
1884. Coscinium. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 38.
1887. Coscinium. Hall and Simpson, Pal. New York, VI, p. xix.
1889. Coscinium. Miller, North American Geol. Pal., p. 298.
1890. Coscinium. Ulrich, Geol. Surv. Illinois, VIII, pp. 385, 496.
1897. Coscinium. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 537.
1887. Coscinotrypa. Hall and Simpson, Pal. New York, VI, p. xix.
1889. Coscinotrypa. Miller, North American Geol. Pal., p. 298.
1897. Coscinotrypa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 537.

Coscinium asterias Prout. See Fistulipora asteria (Prout).

Coscinium cosciniforme Hall and Simpson. See Coscinella cosciniformis (Nicholson).

Coscinium cribriforme Prout.

1859. Coscinium cribriformis. Prout, Trans. St. Louis Acad Sci., I, p. 269, pl. xvi, 1, 1*a*.
1890. Coscinium cribriforme. Ulrich, Geol. Surv. Illinois, VIII, p. 496, pl. xliii, 8.
1897. Coscinotrypa cribriformis. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xiii, 1–7.

Coscinium cribriforme Prout—Continued.

1884. Coscinium cyclops (not of Keyserling). Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 38, pl. ii, 6.
1883. Clathropora carinata. Hall, Rep. State Geologist New York for the year 1882, pl. xxvi, 22–25.
1886. Coscinotrypa carinata. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxix, 29–35.
1887. Coscinotrypa cribriformis var. carinata. Hall and Simpson, Pal. New York, VI, p. 89, pl. xxix, 29–35, pl. xxxiii, 22–25.
Hamilton: Falls of the Ohio; Utica, Indiana.

Coscinium cyclops Prout (not Keyserling). See Clathropora intertexta Nicholson.

Coscinium cyclops Ulrich (not Keyserling). See Coscinium cribriforme Prout.

Coscinium dictyotum (Meek).

1873. Ptilodictya (Stictopora?) dictyota. Meek, Hayden's Sixth Ann. Rep. U. S. Geol. Surv., p. 465.
Carboniferous: Mystic Lake, Montana.

Coscinium elegans Prout. See Glyptopora elegans (Prout).

Coscinium escharense Prout. Not recognizable.

1859. Coscinium escharense. Prout, Trans. St. Louis Acad. Sci., I, p. 574.
1866. Coscinium escharense. Prout, Geol. Surv. Illinois, II, p. 416, pl. xxii, 8, 8*a*.
1884. Lichenalia escharense. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 40.
Keokuk: Warsaw, Illinois.

Coscinium keyserlingi Prout. See Glyptopora keyserlingi (Prout).

Coscinium latum Ulrich.

1890. Coscinium latum. Ulrich, Geol. Surv. Illinois, VIII, p. 497, pl. lxxvi, 7–7*b*.
1894. Coscinium? latum. Keyes, Missouri Geol. Surv., V, p. 18.
Burlington: Calhoun County and Quincy, Illinois; Burlington, Iowa.

Coscinium Michelinia Prout. See Glyptopora michelinia (Prout).

Coscinium plumosum Prout. See Glyptopora plumosa (Prout) and Glyptopora sagenella-caliculosa Ulrich.

Coscinium saganella Prout. See Glyptopora sagenella (Prout).

Coscinium striatum Hall and Simpson.

1887. Coscinium striatum. Hall and Simpson, Pal. New York, VI, p. 238, pl. lxiv, 13–16.
1897. Coscinium striatum. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xiii, 8–12.
1898. Coscinium striatum. Whiteaves, Contr. Canad. Pal., I, Part V, p. 377.
Hamilton: Widder, Ontario.

Coscinium striaturum (Hall).

1883. Clathropora striatura. Hall, Rep. State Geologist New York for the year 1882, pl. (33) xxvi, 20, 21.
1887. Coscinium striaturum. Hall and Simpson, Pal. New York, VI, p. 88, pl. xxxiii, 20, 21.
1897. Coscinium striaturum. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xiv, 1.
Upper Helderberg: Stafford, New York.

Coscinium tuberculatum Prout. See Fistulipora? tuberculata (Prout).

Coscinium wortheni Prout.

1860. Coscinium Wortheni. Prout, Trans. St. Louis Acad. Sci., I, p. 571.
1866. Coscinium Wortheni. Prout, Geol. Surv. Illinois, II, p. 412, pl. xxii, 1.
Keokuk: Near Warsaw, Illinois.
Obs. If recognizable at all, probably an abnormal example of Glyptopora keyserlingi (Prout).

Coscinotrypa Hall. See Coscinium Keyserling.

Coscinotrypa carinata Hall. See Coscinium cribriforme Prout.

Coscinotrypa cribriformis Simpson. See Coscinium cribriforme Prout.

Coscinotrypa cribriformis var. carinata Hall. See Coscinium cribriforme Prout.

Crateripora Ulrich.

1879. Crateripora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 29.
Obs. The forms for which this genus was proposed have been found to be the basal articulating sockets of species of Escharopora and Arthropora.

Crateripora erecta Ulrich. See Arthropora shafferi (Meek).

Crateripora lineata Ulrich. See Escharopora falciformis (Nicholson).

Crateripora lineata var. expansa Ulrich. See Escharopora falciformis (Nicholson).

CREPIPORA Ulrich. Genotype: Crepipora simulans Ulrich.

1882. Crepipora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 157.
1889. Crepipora. Miller, North American Geol. Pal., p. 299.
1890. Crepipora. Ulrich, Geol. Surv. Illinois, VIII, pp. 380, 469.
1893. Crepipora. Ulrich, Geol. Minnesota, III, p. 322.
1896. Crepipora. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 268.
1897. Crepipora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 566.

Crepipora epidermata Ulrich. See Bythotrypa epidermata (Ulrich).

Crepipora hemispherica Ulrich.

1890. Crepipora hemispherica. Ulrich, Geol. Surv. Illinois, VIII, p. 472, pl. xl, 5–5*b*.
Cincinnati (Richmond): Wilmington, Illinois; Delafield, Wisconsin.

Crepipora impolita Ulrich. See Anolotichia impolita (Ulrich).

Crepipora impressa Ulrich.

1890. Crepipora impressa. Ulrich, Geol. Surv. Illinois, VIII, p. 471, pl. xl, 2, 2*a*.
1897. Crepipora impressa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 135, 136 (p. 566).
Cincinnati (Lorraine): Covington, Kentucky.

Crepipora perampla Ulrich.

1893. Crepipora perampla. Ulrich, Geol. Minnesota, III, p. 323, pl. xxviii, 29–32.
1896. Crepipora perampla. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 436A–C (p. 267).
Trenton (Stones River): Chatfield and Spring Valley, Minnesota.

Crepipora simulans Ulrich.

1890. Crepipora simulans. Ulrich, Geol. Surv. Illinois, VIII, p. 470, pl. xxxix, 4, 4*a*, pl. xl, 3, 3*a*; fig. 8*b* (p. 320).
1889. Crepipora simulans. (Ulrich, in press), Miller, North American Geol. Pal., fig. 468 (p. 299).

Crepipora simulans Ulrich—Continued.

1896. Crepipora simulans. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 436D (p. 267).

1897. Crepipora simulans. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 133, 134 (p. 566).

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity. A rather common species in the Lorraine beds of Ohio, Indiana, Kentucky, and Tennessee. The same species or closely related varieties occur in the Trenton of Kentucky and Tennessee, and in the Richmond of Ohio, Indiana, Illinois, Wisconsin, and Kentucky.

Crepipora solida Ulrich.

1890. Crepipora solida. Ulrich, Geol. Surv. Illinois, VIII, p. 472, pl. xl, 4–4*b*.

Cincinnati (Utica): Covington, Kentucky.

Crepipora spatiosa Ulrich.

1893. Crepipora spatiosa. Ulrich, Geol. Minnesota, III, p. 323.

Trenton: Harrodsburg and Frankfort, Kentucky.

Crepipora subæquata Ulrich.

1893. Crepipora subæquata. Ulrich, Geol. Minnesota, III, p. 322, pl. xxviii, 26–28.

Trenton (Black River): St. Paul, Minnesota.

Crepipora venusta (Ulrich).

1878. Chætetes venustus. Ulrich, Jour. Cincinnati Soc. Nat. Hist., I, p. 93, pl. iv, 7, 7*a*.

1882. Crepipora venusta. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 257.

1888. Monticulipora (Fistulipora) venusta. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 33.

Trenton and Cincinnati (Utica): Covington and Newport, Kentucky; Cincinnati, Ohio.

Crisina ? scrobiculata Hall. See Crisinella scrobiculata (Hall).

CRISINELLA Hall. Genotype: Crisina ? scrobiculata Hall.

1883. Crisinella. Hall, Rep. State Geologist New York for the year 1882, expl. pl. (33) xxvi.

1887. Crisinella. Hall and Simpson, Pal. New York, VI, p. xxv.

1889. Crisinella. Miller, North American Geol. Pal., p. 299.

1897. Crisinella. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 526.

Crisinella scrobiculata (Hall).

1883. Crisina ? scrobiculata. Hall, Trans. Albany Institute, X, p. 162 (abstract, 1881, p. 20).

1883. Crisinella scrobiculata. Hall, Rep. State Geologist New York for the year 1882, pl. (33) xxvi, 6–8.

1887. Crisinella scrobiculata. Hall and Simpson, Pal. New York, VI, p. 103, pl. xxxiii, 6–8.

1897. Crisinella scrobiculata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. ix, 1–3.

Upper Helderberg: Western New York.

Cryptopora Nicholson. See Semicoscinium Prout.

Cryptopora mirabilis Nicholson. See Semicoscinium mirabile (Nicholson).

CYCLOPORA Prout. Genotype: Cyclopora fungia Prout.

1860. Cyclopora. Prout, Trans. St. Louis Acad. Sci., I, p. 574.
1866. Cyclopora. Prout, Geol. Surv. Illinois, II, p. 417.
1889. Cyclopora. Miller, North American Geol. Pal., p. 299.
1890. Cyclopora. Ulrich, Geol. Surv. Illinois, VIII, pp. 403, 671.
1897. Cyclopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 601.

Cyclopora discoidea Prout. See Proutella discoidea (Prout).

Cyclopora expatiata Ulrich.

1890. Cyclopora expatiata. Ulrich, Geol. Surv. Illinois, VIII, p. 673, pl. lxviii, 4–4*d*.
1894. Cyclopora expatiata. Keyes, Missouri Geol. Surv., V, p. 37.
Keokuk: Warsaw and Nauvoo, Illinois.

Cyclopora fungia Prout.

1860. Cyclopora fungia. Prout, Trans. St. Louis Acad. Sci., I, p. 577.
1866. Cyclopora fungia. Prout. Geol. Surv. Illinois, II, p. 419, pl. xxii, 9–9*b*.
1890. Cyclopora fungia. Ulrich, Geol. Surv. Illinois, VIII, p. 671, pl. lxviii, 3–3*g*.
1894. Cyclopora fungia. Keyes, Missouri Geol. Surv., V, p. 36.
1897. Cyclopora fungia. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 210–213 (p. 601).
Keokuk and Warsaw: St. Francisville, Missouri (Prout); a common species at many localities in Illinois and Iowa.

Cyclopora Jamesii Prout. See Escharopora pavonia (D'Orbigny).

Cyclopora polymorpha Prout. See Stenopora tuberculata (Prout).

CYCLOPORELLA Ulrich. Genotype: Cycloporella spinifera Ulrich.

1890. Cycloporella. Ulrich, Geol. Surv. Illinois, VIII, pp. 404, 675.
1889. Cycloporella. (Ulrich, in press), Miller, North American Geol. Pal., p. 299.

Cycloporella ? perversa Ulrich.

1890. Cycloporella ? perversa. Ulrich, Geol. Surv. Illinois, VIII, p. 676, pl. lxix, 3–3*b*.
1894. Cycloporella perversa. Keyes, Missouri Geol. Surv., V, p. 37.
Keokuk: Warsaw and Greene counties, Illinois; Bentonsport, Iowa.

Cycloporella spinifera Ulrich.

1890. Cycloporella spinifera. Ulrich, Geol. Surv. Illinois, VIII, p. 675, pl. lxix, 1–1*c*.
1894. Cycloporella spinifera. Keyes, Missouri Geol. Surv., V, p. 37.
Keokuk: Warsaw, Illinois.

Cycloporina Simpson. See Semicoscinium Prout.

Cycloporina hemicycla Simpson. See Semicoscinium labiatum (Hall).

Cycloporina rhomboidea Simpson. See Semicoscinium semirotundum (Hall).

Cycloporina semirotunda Simpson. See Semicoscinium semirotundum (Hall).

CYCLOTRYPA Ulrich. Genotype: Fistulipora communis Ulrich.

1890. Nov. gen. (?). Ulrich, Geol. Surv. Illinois, VIII, p. 382.
1896. Cyclotrypa. Ulrich, Zittel's Textb. Pal., (Engl. ed.), p. 269.

Cyclotrypa collina (Ulrich).

1890. Fistulipora collina. Ulrich, Geol. Surv. Illinois, VIII, p. 478, pl. xlvii, 6–6*b*, pl. xlviii, 5, 5*a*.

1896. Cyclotrypa collina. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 269.

Hamilton: Buffalo, Iowa.

Cyclotrypa communis (Ulrich).

1890. Fistulipora communis. Ulrich, Geol. Surv. Illinois, VIII, p. 476, pl. xlvii, 1, 1*a*, pl. xlviii, 1, 1*a*.

1896. Cyclotrypa communis. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 443 (p. 269).

Hamilton: Buffalo, Iowa; Rock Island, Illinois.

CYSTODICTYA Ulrich. Genotype: Cystodictya ocellata Ulrich.

1882. Cystodictya. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, pp. 152, 170.

1884. Cystodictya. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 35.

1887. Cystodictya. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 74.

1889. Cystodictya. Miller, North American Geol. Pal., p. 299.

1890. Cystodictya. Ulrich, Geol. Surv. Illinois, VIII, pp. 385, 491.

1896. Cystodictya. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 280.

1897. Cystodictya. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 536.

1883. Arcanopora. Vine, Fifty-third Rep. British Assoc. Adv. Sci., p. 204.

1887. Stictopora (not of Hall, 1847). Hall and Simpson, Pal. New York, VI, p. xx.

1897. Stictocella. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 532.

Cystodictya americana Ulrich.

1890. Cystodictya americana. Ulrich, Geol. Surv. Illinois, VIII, p. 494, pl. lxxvi, 5, 5*a*.

1894. Cystodictya americana. Keyes, Missouri Geol. Surv., V, p. 17.

Keokuk: Kings Mountain, Kentucky; Bentonsport, Iowa.

Cystodictya angularis (Hall and Simpson).

1887. Stictopora angularis. Hall and Simpson, Pal. New York, VI, p. 252, pl. lxi, 23.

1891. Stictopora angularis. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 46; Forty-fourth Ann. Rep. New York State Mus., p. 76.

Hamilton: Near Le Roy, New York.

Obs. Probably a synonym for Cystodicta tumulosa (Hall and Simpson).

Cystodictya angusta Ulrich.

1888. Cystodictya angusta. Ulrich, Bull. Denison Univ., IV, p. 82, pl. xiv, 20.

Waverly: Moot's Run, Ohio.

Cystodictya bifurcata (Hall and Simpson).

1887. Stictopora bifurcata. Hall and Simpson, Pal. New York, VI, p. 254, pl. lxiii, 17.

1891. Stictopora bifurcata. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 47; Forty-fourth Ann. Rep. New York State Mus., p. 77.

1889. Stictopora bristolensis. Miller, North American Geol. Pal., p. 323.

Hamilton: Near Muttonville, Ontario County, New York.

Cystodictya carbonaria (Meek).

1871. Ptilodictya (Stictopora) carbonaria. Meek, Proc. Acad. Nat. Sci. Philadelphia, p. 160.

Cystodictya carbonaria (Meek)—Continued.

1875. Ptilodictya (Stictopora) carbonaria. Meek, Pal. Ohio, II, p. 328, pl. xx, 3*a*, *b*.

1882. Cystodictya carbonaria. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 171.

1887. Cystodictya carbonaria. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 74, pl. vii, 2*a–c*.

Coal Measures: Newark and Bald Hill, Ohio; Seville, Illinois.

Cystodictya ? concentrica (Prout).

1858. Eschara ? concentrica. Prout, Trans. St. Louis Acad. Sci., I, p. 234.

Carboniferous: Organ Mountains, New Mexico.

Cystodictya crenulata Ulrich. See Cystodictya subrigida (Hall).

Cystodictya crescens (Hall).

1886. Stictopora crescens. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxvii, 5–11.

1887. Stictopora crescens. Hall and Simpson, Pal. New York, VI, p. 91, pl. xxvii, 5–11.

1890. Cystodictya crescens. Ulrich, Geol. Surv. Illinois, VIII, p. 492.

1897. Stictopora crescens. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. x, 9, 10.

Upper Helderberg: Ontario.

Cystodictya gilberti (Meek).

1871. Ptilodictya (Stictopora) Gilberti. Meek, Proc. Acad. Nat. Sci. Philadelphia, p. 63.

1873. Ptilodictya (Stictopora) Gilberti. Meek, Pal. Ohio, I, p. 194, pl. xviii, 1*a–c*.

1875. Ptilodictya Gilberti. Nicholson, Pal. Province Ontario, p. 80.

1882. Cystodictya gilberti. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 168. pl. viii, 2, 2*a*; ibid., VII, 1884, p. 36, pl. ii, 5–5*b*.

1883. Stictopora Gilberti. Hall, Trans. Albany Institute, X, p. 155 (abstract, 1881, p. 13).

1883. Stictopora Gilberti. Hall, Rep. State Geologist New York for the year 1882, pl. (28) xxv, 21, 22.

1886. Stictopora Gilberti. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxvii, 20–35.

1887. Stictopora Gilberti. Hall and Simpson, Pal. New York, VI, p. 90, pl. xxvii, 20–35, pl. xxviii, 21, 22.

1890. Cystodictya gilberti. Ulrich, Geol. Surv. Illinois, VIII, fig. 8*e* (p. 320), pl. xliii, 7.

1897. Cystodictya gilberti. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. x, 12–17.

1881. Stictopora crispata. Quenstedt, Roehren- und Sternkorallen, p. 173, pl. cl, 3*s*.

Upper Helderberg: Sylvania and Marblehead, Ohio (Meek); Jarvis, Ontario, (Nicholson).

Hamilton: Falls of the Ohio; Utica, Indiana.

Cystodictya hamiltonensis Ulrich.

1890. Cystodictya hamiltonensis. Ulrich, Geol. Surv. Illinois, VIII, p. 493, pl. xlii, 4, pl. xliii, 1.

1892. Cystodictya Hamiltonensis. Whiteaves, Contr. Canadian Pal. I, p. 279, pl. xxxvi, 2–2*b*.

Hamilton: Buffalo, Iowa; Rock Island, Illinois; Milwaukee, Wisconsin; Eighteen-Mile Creek, New York; several localities in Manitoba (Whiteaves).

Cystodictya incisurata (Hall).

1883. Stictopora incisurata. Hall, Trans. Albany Institute, X, p. 189 (abstract, 1881, p. 189).

1884. Stictopora incisurata. Hall, Rep. State Geologist New York for the year 1883, p. 38.

1887. Stictopora incisurata. Hall and Simpson, Pal. New York, VI, p. 241, pl. lx, 1–18.

1890. Cystodictya incisurata. Ulrich, Geol. Surv. Illinois, VIII, p. 492.

1897. Cystodictya incisurata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. x, 11.

1898. Cystodictya incisurata. Whiteaves, Contr. Canadian Pal., I, p. 377.

1899. Stictopora incisurata. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 172, fig. 67.

1883. Stictopora indenta. Hall, Trans. Albany Institute, X, p. 189 (abstract, 1881, p. 189).

1884. Stictopora indenta. Hall, Rep. State Geologist New York for the year 1883, p. 40.

1883. Stictopora obliqua. Hall, Trans. Albany Institute, X, p. 189 (abstract, 1881, p. 189).

1884. Stictopora obliqua. Hall, Rep. State Geologist New York for the year 1883, p. 39.

1883. Stictopora multipora. Hall, Trans. Albany Institute, X, p. 190 (abstract, 1881, p. 190).

1884. Stictopora multipora. Hall, Rep. State Geologist New York for the year 1883, p. 43.

Hamilton: Lodi Landing, Seneca County, Eighteenmile Creek, and many other localities in central and western New York; Thedford, Ontario.

Cystodictya ? incrassata Whiteaves. See Stictopora ? ? incrassata (Hall).

Cystodictya ? invertis (Hall).

1883. Stictopora invertis. Hall, Trans. Albany Institute, X, p. 157 (abstract, 1881, p. 15).

1883. Stictopora invertis. Hall, Rep. State Geologist New York for the year 1882, pl. (28) xxv, 24–26.

1887. Stictopora invertis. Hall and Simpson, Pal. New York, VI, p. 94, pl. xxviii, 24–26.

1890. Cystodictya invertis. Ulrich, Geol. Surv. Illinois, VIII, p. 492.

Upper Helderberg: New York.

Cystodictya limata (Hall and Simpson).

1887. Stictopora limata. Hall and Simpson, Pal. New York, VI, p. 250, pl. lxi, 14–16.

1890. Cystodictya limata. Ulrich, Geol. Surv. Illinois, VIII, p. 492.

1891. Stictopora limata. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 44; Forty-fourth Ann. Rep. New York State Mus., p. 74.

Hamilton: Darien Center, New York.

Obs. See also Cystodictya subrigida (Hall).

Cystodictya linearis (Hall).

1883. Stictopora linearis. Hall, Trans. Albany Institute, X, p. 157 (abstract, 1881, p. 15).

1883. Stictopora linearis. Hall, Rep. State Geologist New York for the year 1882, pl. (28) xxv, 4, 5.

1887. Stictopora linearis. Hall and Simpson, Pal. New York, VI, p. 96, pl. xxvii, 1, pl. xxviii, 4, 5.

Cystodictya linearis (Hall)—Continued.

1890. Cystodictya linearis. Ulrich, Geol. Surv. Illinois, VIII, p. 492.

1886. Stictopora rectilatera. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxvii, 1.

Upper Helderberg: Onondaga Valley and Le Roy, New York.

Cystodictya lineata Ulrich.

1884. Cystodictya lineata. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 37, pl. ii, 4-4*c*.

Keokuk: Kings Mountain, Kentucky.

Cystodictya lineata-major Ulrich.

1890. Cystodictya lineata var. major. Ulrich, Geol. Surv. Illinois, VIII, p. 495, pl. lxxvi, 3.

St. Louis: Alton, Illinois.

Cystodictya lineata-sancti-ludovici Ulrich.

1890. Cystodictya lineata var. sancti-ludovici, Ulrich, Geol. Surv. Illinois, VIII, p. 492.

St. Louis: St. Louis, Missouri; Eddyville and Elizabethtown, Kentucky.

Cystodictya meeki (Nicholson).

1874. Ptilodictya Meeki. Nicholson, Geol. Mag., new ser., I, p. 123, pl. vi, 14.

1874. Ptilodictya Meeki. Nicholson, Pal. Province Ontario, p. 97, fig. 34.

1898. Cystodictya Meeki. Whiteaves, Contr. Canadian Pal., I, p. 377.

Upper Helderberg: Port Colborne, Ontario.

Hamilton: Arkona, Ontario.

Obs. This may be a synonym for Cystodictya sulcata (Winchell).

Cystodictya nitida Ulrich.

1890. Cystodictya nitida. Ulrich, Geol. Surv. Illinois, VIII, p. 493, pl. lxxvi, 4-4*c*.

1894. Cystodictya nitida. Keyes, Missouri Geol. Surv., V, p. 17.

Keokuk: Bentonsport, Iowa.

Cystodictya ocellata Ulrich.

1882. Cystodictya occellata. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 170, pl. viii, 3, 3*a*.

1884. Cystodictya ocellata. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, pl. ii, 3, 3*a*.

1889. Cystodictya ocellata. Miller, North American Geol. Pal., figs. 469, 470 (p. 299).

1890. Cystodictya occellata. Ulrich, Geol. Surv. Illinois, VIII, fig. 8*d* (p. 320).

Keokuk: Near Somerset, Kentucky.

Cystodictya ovata (Hall and Simpson).

1887. Stictopora ovata. Hall and Simpson, Pal. New York, VI, p. 248, pl. lxiii, 24.

1890. Cystodictya ovata. Ulrich, Geol. Surv. Illinois, VIII, p. 492.

1891. Stictopora ovata. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 43; Forty-fourth Ann. Rep. New York State Mus., p. 73.

Hamilton: Canandaigua Lake, New York.

Cystodictya ovatipora (Hall).

1883. Stictopora ovatipora. Hall, Trans. Albany Institute, X, p. 156 (abstract, 1881, p. 14).

1883. Stictopora ovatipora. Hall, Rep. State Geologist New York for the year 1882, pl. (28) xxv, 23, 23*a*.

Cystodictya ovatipora (Hall)—Continued.

1886. Stictopora ovatipora. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxvii, 12–19.

1887. Stictopora ovatipora. Hall and Simpson, Pal. New York, VI, p. 93, pl. xxvii, 12–19 (not pl. xxviii, 23, 23*a*).

1890. Cystodictya ovatipora. Ulrich, Geol. Surv. Illinois, VIII, p. 492.

1897. Cystodictya ovatipora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. x, 18, 19.

Not Stictopora ovatipora. Miller, North American Geol. Pal., fig. 518 (p. 324), = Stictotrypa similis (Hall).

Hamilton: Falls of the Ohio.

Cystodictya perarcta (Hall).

1883. Stictopora perarcta. Hall, Trans. Albany Institute, X, p. 157 (abstract, 1881, p. 15).

1886. Stictopora perarcta. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxix, 36, 37.

1887. Stictopora perarcta. Hall and Simpson, Pal. New York, VI, p. 96, pl. xxix, 36, 37.

1890. Cystodictya perarcta. Ulrich, Geol. Surv. Illinois, VIII, p. 492.

Upper Helderberg: Onondaga Valley, New York.

Cystodictya pustulosa Ulrich.

1890. Cystodictya pustulosa. Ulrich, Geol. Surv. Illinois, VIII, p. 495, pl. lxxvi, 2, 2*a*.

1894. Cystodictya pustulosa. Keyes, Missouri Geol. Surv., V, p. 17.

Keokuk: Kings Mountain, Kentucky; Keokuk, Iowa; Warsaw and Nauvoo, Illinois.

Cystodictya recta (Hall and Simpson).

1887. Stictopora recta. Hall and Simpson, Pal. New York, VI, p. 253.

1891. Stictopora recta. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 47; Forty-fourth Ann. Rep. New York State Mus., p. 77.

1899. Stictopora recta. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 173.

Hamilton: West Hamburg, New York.

Cystodictya rectilinea (Hall and Simpson).

1887. Stictopora rectalinea. Hall and Simpson, Pal. New York, VI, p. 245, pl. lxiii, 23.

1890. Cystodictya rectalinea. Ulrich, Geol. Surv. Illinois, VIII, p. 492.

1891. Stictopora rectalinea. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 40; Forty-fourth Ann. Rep. New York State Mus., p. 70.

1898. Cystodictya rectilinea. Whiteaves, Contr. Canadian Pal., I, p. 377.

Hamilton: West Williams, Ontario.

Cystodictya rigida (Hall).

1883. Stictopora rigida. Hall, Trans. Albany Institute, X, p. 156 (abstract, 1881, p. 14).

1883. Stictopora rigida. Hall, Rep. State Geologist New York for the year 1882, pl. (28) xxv, 15, 16.

1887. Stictopora rigida. Hall and Simpson, Pal. New York, VI, p. 91, pl. xxviii, 15, 16.

1890. Cystodictya rigida. Ulrich, Geol. Surv. Illinois, VIII, p. 492.

Upper Helderberg: Near Le Roy, New York.

Cystodictya semistriata (Hall).

1883. Stictopora semistriata. Hall, Trans. Albany Institute, X, p 156 (abstract, 1881, p. 14).
1883. Stictopora semistriata. Hall, Rep. State Geologist New York for the year 1882, pl. (28) xxv, 17–20.
1887. Stictopora semistriata. Hall and Simpson, Pal. New York, VI, p. 95, pl xxviii, 17–20.
1890. Cystodictya semistriata. Ulrich, Geol. Surv. Illinois, VIII, p. 492.
Upper Helderberg: Near Le Roy, New York.

Cystodictya simulans Ulrich.

1888. Cystodictya simulans. Ulrich, Bull. Denison Univ., IV, p. 81, pl. xiii, 10.
Keokuk: Warsaw, Illinois; Keokuk, Iowa.
Waverly: Moots Run, Ohio.

Cystodictya sinuosa (Hall).

1883. Stictopora sinuosa. Hall, Trans. Albany Institute, X, p. 190 (abstract, 1881, p. 190).
1884. Stictopora sinuosa. Hall, Rep. State Geologist New York for the year 1883, p. 42.
1887. Stictopora sinuosa. Hall and Simpson, Pal. New York, VI, p. 247, pl. lxi, 17.
1890. Cystodictya sinuosa. Ulrich, Geol. Surv. Illinois, VIII, p. 492.
1891. Stictopora sinuosa. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 42; Forty-fourth Ann. Rep. New York State Mus., p. 72.
1897. Stictocella sinuosa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 532.
1899. Stictopora sinuosa. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 173, fig. 68.
Hamilton: South of Auburn and Eighteen-Mile Creek, New York.

Cystodictya subrigida (Hall).

1883. Stictopora subrigida. Hall, Trans. Albany Institute, X, p. 190 (abstract, 1881, p. 190).
1884. Stictopora subrigida. Hall, Rep. State Geologist New York for the year 1883, p. 43.
1887. Stictopora subrigida. Hall and Simpson, Pal. New York, VI, p. 251, pl. lx, 21.
1890. Cystodictya subrigida. Ulrich, Geol. Surv. Illinois, VIII, p. 492.
1891. Stictopora subrigida. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 45; Forty-fourth Ann. Rep. New York State Mus., p. 75.
1884. Stictopora crenulata. Hall, Rep. State Geologist New York for the year 1883, p. 44.
1887. Stictopora crenulata. Hall and Simpson, Pal. New York, VI, p. 252, pl. lx, 22.
1890. Cystodictya crenulata. Ulrich, Geol. Surv. Illinois, VIII, p. 492.
1891. Stictopora crenulata. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 45; Forty-fourth Ann. Rep. New York State Mus., p. 75.
Hamilton: Near Middleburg and near Alden Station, New York.
Obs. Cystodictya limata (Hall and Simpson) may be a synonym of this species.

Cystodictya sulcata (Winchell).

1866. Stictopora sulcata. Winchell, Rep. Lower Penin. Michigan, p. 92.
1890. Cystodictya sulcata. Ulrich, Geol. Surv. Illinois, VIII, p. 492.
Hamilton: Petoskey, Michigan.
Obs. Compare Cystodictya meeki (Nicholson) with this species.

Cystodictya trilineata (Hall and Simpson).

1887. Stictopora trilineata. Hall and Simpson, Pal. New York, VI, p. 243, pl. lxi, 26, 27.
1890. Cystodictya trilineata. Ulrich, Geol. Surv. Illinois, VIII, p. 492.
Hamilton: Moscow and near Canandaigua Lake, New York.

Cystodictya tumulosa (Hall and Simpson).

1887. Stictopora tumulosa. Hall and Simpson, Pal. New York, VI, p. 246, pl. lxi, 18–22.
1890. Cystodictya tumulosa. Ulrich, Geol. Surv. Illinois, VIII, p. 492.
1891. Stictopora tumulosa. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 41; Forty-fourth Ann. Rep. New York State Mus., p. 71.
Hamilton: Moscow, and south of Le Roy, New York.

Cystodictya vermicula (Hall).

1886. Stictopora vermicula. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxvii, 2–4.
1887. Stictopora vermicula. Hall and Simpson, Pal. New York, VI, p. 93, pl. xxvii, 2–4.
1890. Cystodictya vermicula. Ulrich, Geol. Surv. Illinois, VIII, p. 492.
Hamilton: Falls of the Ohio.

Cystodictya zigzag Ulrich.

1888. Cystodictya zigzag. Ulrich, Bull. Denison Univ., IV., p. 81, pl. xiii, 11, 11*a*.
Keokuk: Keokuk, Iowa.
Waverly (Cuyahoga shale): Richfield, Ohio.

CYSTOPORA Hall. Genotype: Cystopora geniculata Hall.

1883. Cystopora. Hall, Trans. Albany Institute, X, p. 161 (abstract, 1881, p. 19).
1887. Cystopora. Hall and Simpson, Pal. New York, VI, p. xxv.
1889. Cystopora. Miller, North American Geol. Pal., p. 300.
1897. Cystopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 598.

Cystopora geniculata Hall.

1883. Cystopora geniculata. Hall, Trans. Albany Institute, X, p. 161 (abstract, 1881, p. 20).
1887. Cystopora geniculata. Hall and Simpson, Pal. New York, VI, p. 103, pl. lxvi, 7–10.
1897. Cystopora geniculata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxv, 3–5.
Hamilton: Falls of the Ohio.

DEKAYELLA Ulrich. Genotype: Dekayella obscura Ulrich.

1882. Dekayella. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 155; ibid., VI, 1883, p. 90.
1889. Dekayella. Miller, North American Geol. Pal., p. 184.
1890. Dekayella. Ulrich, Geol. Surv. Illinois, VIII, p. 372.
1893. Dekayella. Ulrich, Geol. Minnesota, III, p. 269.
1896. Dekayella. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 273.

DEKAYELLA Ulrich—Continued.

1897. Dekayella. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 589.

Dekayella obscura Ulrich.

1883. Dekayella obscura. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 89, pl. i, 4–4*b*.

1896. Dekayella obscura. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 454 (p. 274).

1897. Dekayella obscura. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 180–182 (p. 589).

Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

Dekayella prænuntia Ulrich.

1893. Dekayella prænuntia. Ulrich, Geol. Minnesota, III, p. 270, pl. xxiii, 32–47.

1897. Dekayella prænuntia. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 177–179 (p. 589).

Trenton (Black River): Minneapolis, St. Paul, and Goodhue and Fillmore counties, Minnesota.

Dekayella prænuntia-echinata Ulrich.

1893. Dekayella prænuntia var. echinata. Ulrich, Geol. Minnesota, III, p. 271, pl. xxiii, 32–38.

Trenton (Black River): Fountain, Minneapolis and St. Paul, Minnesota.

Dekayella prænuntia-multipora Ulrich.

1893. Dekayella prænuntia var. multipora. Ulrich, Geol. Minnesota, III, p. 272, pl. xxiii, 44–47.

Trenton (Black River): Minneapolis, St. Paul, and Goodhue and Fillmore counties, Minnesota.

Dekayella prænuntia-nævigera Ulrich.

1893. Dekayella prænuntia var. nævigera. Ulrich, Geol. Minnesota, III, p. 271.

Trenton (Black River): Fillmore County, Minnesota.

Dekayella prænuntia-simplex Ulrich.

1893. Dekayella prænuntia var. simplex. Ulrich, Geol. Minnesota, III, p. 271, pl. xxiii, 39–42.

Trenton (Stones River and Black River): Minneapolis and St. Paul, Minnesota.

Dekayella trentonensis (Ulrich).

1883. Dekayia trentonensis. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 151, pl. vi, 6, 6*a*.

1893. Dekayia trentonensis. Ulrich, Geol. Minnesota, III, p. 274.

Trenton: Burgin and Frankfort, Kentucky; St. Paul and Cannon Falls, Minnesota.

Dekayella ulrichi (Nicholson).

1874. Chætetes Fletcheri (not of Milne-Edwards and Haime). Nicholson, Quar. Jour. Geol. Soc. London, XXX, p. 504, pl. xxix, 6, 6*a*.

1875. Chætetes Fletcheri (not of Milne-Edwards and Haime). Nicholson, Pal. Ohio, II, p. 197, pl. xxi, 7, 7a.

1876. Chætetes Fletcheri (not of Milne-Edwards and Haime). Nicholson, Ann. Mag. Nat. Hist., ser. 4, XVIII, p. 90, pl. v, 14.

1881. Chætetes Fletscheri (not of Milne-Edwards and Haime). Quenstedt, Roehren- und Sternkorallen, p. 83, pl. cxlvi, 27.

Dekayella ulrichi (Nicholson)—Continued.

1881. Monticulipora (Heterotrypa) Ulrichii. Nicholson, Genus Monticulipora, p. 131, fig. 22.

1883. Monticulipora ulrichii. (Van Cleve) Hall, Twelfth Ann. Rep. Indiana Geol. Nat. Hist., p. 249, pl. xi, 10.

1883. Dekayella ulrichi. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, pp. 91, 153.

1888. Monticulipora ulrichii. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 179.

1894. Monticulipora ulrichii. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 201.

Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

Dekayella ulrichi-robusta Foord.

1884. Dekayella robusta. Foord, Ann. Mag. Nat. Hist., ser. 5, XIII, p. 341, pl. xii, 2–2*d*.

1884. Monticulipora ohioensis. James, Jour. Cincinnati Soc. Nat. Hist., VII, p. 137, pl. vii, 1, 1*a*.

1888. Monticulipora ohioensis. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 183.

1894. Monticulipora ohioensis. J. F. James, Jour. Cincinnati Soc. Nat Hist., XVI, p. 207.

Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

DEKAYIA Milne-Edwards and Haime. Genotype: Dekayia aspera Milne-Edwards and Haime.

1851. Dekayia. Milne-Edwards and Haime, Pol. Foss. Terr. Pal., p. 277.

1860. Dekayia. Milne-Edwards, Hist. Nat. des Corall., III, p. 283.

1879. Dekayia. Nicholson, Pal. Tabulate Corals, p. 291.

1881. Dekayia. Nicholson, Genus Monticulipora, p. 98.

1882. Dekayia. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 155; ibid., VI, 1883, p. 148.

1886. Dekayia. Waagen and Wentzel, Pal. Indica, Ser. XIII, p. 874.

1888. Dekayia. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 28.

1889. Dekayia. Miller, North American Geol. Pal., p. 184.

1890. Dekayia. Ulrich, Geol. Surv. Illinois, VIII, pp. 371, 415.

1893. Dekayia. Ulrich, Geol. Minnesota, III, p. 274.

1896. Dekayia. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 273.

1896. Dekayia. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 115.

1897. Dekayia. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 578.

Dekayia appressa Ulrich.

1883. Dekayia appressa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 152, pl. vi, 7–7*b*.

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

Dekayia aspera Milne-Edwards and Haime.

1851. Dekayia aspera. Milne-Edwards and Haime, Pol. Foss. Terr. Pal., p. 278, pl. xvi, 2, 2*a*.

1860. Dekayia aspera. Milne-Edwards, Hist. Nat. des Corall., III, p. 283.

1883. Dekayia aspera. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 148, pl. vi, 5.

1888. Monticulipora (Dekayia) aspera. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 28.

1896. Monticulipora (Dekayia) aspera. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 116.

Dekayia aspera Milne-Edwards and Haime—Continued.

1896. Dekayia aspera. Ulrich, Zittel's Textb. Pal. (Eng. ed.), fig. 455 (p. 274).
1874. Chætetes attritus. Nicholson, Quar. Jour. Geol. Soc. London, XXX, p. 503, pl. xxix, 4, 4*a*.
1875. Chætetes attritus. Nicholson, Pal. Ohio, II, p. 194, pl. xxi, 4.
1876. Dekayia attrita. Nicholson, Ann. Mag. Nat. Hist., ser.4, XVIII, p. 93, pl. v, 12, 12*a*.
1879. Dekayia attrita. Nicholson, Pal. Tabulate Corals, p. 298, pl. xv, 1–1*c*.
Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

Dekayia attrita Nicholson. See Dekayia aspera Milne-Edwards and Haime.

Dekayia? devonica Ulrich.

1890. Dekayia devonica. Ulrich, Geol. Surv. Illinois, VIII, p. 416, pl. xlv, 5–5*d*.
1897. Dekayia devonica. Simpson, Fourteenth Ann. Rep. State Geologist New York, for the year 1894, figs. 141–144 (p. 578).
Hamilton: Falls of the Ohio; Eighteen-Mile Creek, New York.

Dekayia maculata James.

1881. Dekayia maculata. James, Paleontologist, No. 5, p. 37.
1896. Monticulipora (Dekayia) maculata. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 116, fig. 11.
Cincinnati (Utica): Loveland and Cincinnati, Ohio, and vicinity.

Dekayia multispinosa Ulrich.

1883. Dekayia multispinosa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 154, pl. vi, 8, 8*a*.
Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

Dekayia paupera Ulrich. See Heterotrypa paupera (Ulrich).

Dekayia pelliculata Ulrich.

1883. Dekayia pelliculata. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 150, pl. vi, 9, 9*a*.
1896. Monticulipora (Dekayia) pelliculata. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 117.
Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

Dekayia trentonensis Ulrich. See Dekayella trentonensis (Ulrich).

Dendricopora De Koninck. See Ptilopora McCoy.

DIAMESOPORA Hall. Genotype: Diamesopora dichotoma Hall.

1852. Diamesopora. Hall, Pal. New York, II, p. 158. (Not defined.)
1887. Diamesopora. Hall and Simpson, Pal. New York, VI, pp. xv, 19.
1889. Diamesopora. Miller, North American Geol. Pal., p. 300.
1897. Diamesopora. Simpson, Fourteenth Ann. Rep. State Geologist New York, for the year 1894, p. 566.
Not Diamesopora (= Cœloclema). Ulrich, Geol. Surv. Illinois, VIII, 1890, pp. 380, 467; Geol. Minnesota, III, 1893, p. 330; Zittel's Textb. Pal. (Engl. ed.), 1896, p. 268.

Diamesopora camerata Hall and Simpson. See Chilotrypa camerata (Hall).

Diamesopora communis Ulrich. See Cœloclema concentricum (James).

Diamesopora constricta Hall and Simpson. See Chilotrypa constricta (Hall).

Diamesopora dichotoma Hall.

1852. Diamesopora dichotoma. Hall, Pal. New York, II, p. 158, pl. xl B, *3a–d*.
Niagara: Lockport, New York.

Diamesopora dispersa Hall. See Chilotrypa dispersa (Hall).

Diamesopora infrequens (Hall).

1876. Trematopora infrequens. Hall, Twenty-eighth Ann. Rep. New York State Mus. (documentary edition), pl. x, 13, 14 (in error for 3, 4); ibid., (Museum edition, 1879), p. 111, pl. x, 3 (in part), 4.
1882. Trematopora infrequens. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 232, pl. ix, 3 (in part), 4.
1883. Cœloclema infrequens. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 258.
1890. Diamesopora infrequens. Ulrich, Geol. Surv. Illinois, VIII, p. 467.
Niagara: Waldron, Indiana.

Diamesopora osculum (Hall).

1876. Trematopora osculum. Hall, Twenty-eighth Ann. Rep. New York State Mus. (documentary edition), pl. x, 3–12 (3 and 4 in error); ibid., (Museum edition, 1879), p. 110, pl. x, 5–8, 11–14.
1882. Trematopora osculum. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 231, pl. ix, 5–8, 11–14.
1883. Cœloclema osculum. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 258.
1890. Diamesopora osculum. Ulrich, Geol. Surv. Illinois, VIII, p. 467.
Niagara: Waldron, Indiana.

Diamesopora oweni Ulrich. See Cœloclema oweni (James).

Diamesopora subimbricata (Hall).

1879. Trematopora subimbricata. Hall, Twenty-eighth Ann. Rep. New York State Mus. (Museum edition), pl. x, 9, 10.
1883. Trematopora subimbricata. Hall, Trans. Albany Institute, X, p. 60 (abstract, 1879, p. 4).
1882. Trematopora subimbricata. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 234, pl. ix, 9, 10.
1882. Cœloclema imbricata. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p, 258.
1890. Diamesopora subimbricata. Ulrich, Geol. Surv. Illinois, VIII, p. 467.
Niagara: Waldron, Indiana.

Diamesopora trentonensis Ulrich. See Cœloclema trentonensis (Ulrich).

Diamesopora ? tubulosa (Hall).

1852. Trematopora tubulosa. Hall, Pal. New York, II, p. 151, pl. xl A, *3a–c*
1866. Diamesopora tubulosa. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 119.
1890. Diamesopora tubulosa. Ulrich, Geol. Surv. Illinois, VIII, p. 467.
Clinton: Wayne County, New York.

Diamesopora varia Ulrich. See Chilotrypa varia (Hall).

Diamesopora vaupeli Ulrich. See Cœloclema alternatum (James).

DIANULITES Eichwald.

1829. Dianulites. Eichwald, Zool. Spec., I, p. 180.
1860. Dianulites. Eichwald, Lethæa Rossica, I, p. 487.
1877. Dianulites. Dybowski, Die Chætetiden der Ostbaltischen Silur-form., p. 14.
1881. Dianulites. Nicholson, Genus Monticulipora, pp. 20, 155.
1886. Dianulites. Waagen and Wentzel, Pal. Indica, Ser. XIII, p. 874.
1897. Dianulites. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 587.

DIANULITES Eichwald—Continued.

Obs. This genus as defined by Eichwald is wholly unintelligible and was, until 1877 when Dybowski resurrected and redefined it, not recognized by paleontologists. Dybowski has not helped the matter by his effort, for his arrangement of the species is quite arbitrary, no two forms perhaps being strictly congeneric.

Diastoporella Vine. See Berenicea Lamouroux.

DIASTOPORINA Ulrich. Genotype: Diastoporina flabellata Ulrich.

1890. Diastoporina. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 177.
1892. Diastoporina. Miller, North American Geol. Pal., First Appendix, p. 684.
1893. Diastoporina. Ulrich, Geol. Minnesota, III, p. 121.
1897. Diastoporina. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 595.

Diastoporina flabellata Ulrich.

1890. Diastoporina flabellata. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 178, fig. 5.
1893. Diastoporina flabellata. Ulrich, Geol. Minnesota, III, p. 122, pl. ii, 2, 3.
1897. Diastoporina flabellata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 199, 200 (p. 595).
Trenton: Cannon Falls and St. Paul, Minnesota.

DICHOTRYPA Ulrich. Genotype: Dichotrypa foliata Ulrich.

1890. Dichotrypa. Ulrich, Geol. Surv. Illinois, VIII, pp. 386, 498.
1889. Dichotrypa. (Ulrich, in press) Miller, North American Geol. Pal., p.300.

Dichotrypa elegans Ulrich.

1890. Dichotrypa elegans. Ulrich, Geol. Surv. Illinois, VIII, p. 500, pl. lxxvi, 8–8*d*.
St. Louis: Elizabethtown, Kentucky; Jersey and Monroe counties, Illinois.
Obs. See Dichotrypa grandis Ulrich for a probable synonym.

Dichotrypa expatiata Ulrich.

1890. Dichotrypa expatiata. Ulrich, Geol. Surv. Illinois, VIII, p. 501.
St. Louis: Alton, Illinois.

Dichotrypa flabellum (Rominger).

1866. Fistulipora flabellum. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 122.
1890. Dichotrypa flabellum. Ulrich, Geol. Surv. Illinois, VIII, p. 501, pl. lxxvii, 1–1*b*.
Warsaw: Spergen Hill, Indiana.
St. Louis: Elizabethtown and Eddyville, Kentucky; Clarksville, Tennessee.

Dichotrypa foliata Ulrich.

1890. Dichotrypa foliata. Ulrich, Geol. Surv. Illinois, VIII, p. 499, pl. xlii, 2–2*g*.
Hamilton: Buffalo, Iowa.

Dichotrypa grandis Ulrich.

1890. Dichotrypa grandis. Ulrich, Geol. Surv. Illinois, VIII, p. 498, pl. xlii, 1–1*e*.
Niagara (?): Will County, near Wilmington, Illinois (?).
Obs. This form is probably from the St. Louis group of Illinois and may be the same as Dichotrypa elegans Ulrich.

Dichotrypa intermedia Ulrich.

1890. Dichotrypa intermedia. Ulrich, Geol. Surv. Illinois, VIII, p. 500, pl. lxxvi, 9–9*c*.

Dichotrypa intermedia Ulrich—Continued.

1894. Dichotrypa intermedia. Keyes, Missouri Geol. Surv., V, p. 18.
St. Louis: Alton and Columbia, Illinois; St. Louis, Missouri.

Dichotrypa lyroides Ulrich.

1890. Dichotrypa lyroides. Ulrich, Geol. Surv. Illinois, VIII, p. 502, pl. lxxvii, 2–2*b*.
St. Louis: Southern Kentucky.

DICRANOPORA Ulrich. Genotype: Ptilodictya internodia Miller and Dyer.

1882. Dicranopora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, pp. 152, 166.
1889. Dicranopora. Miller, North American Geol. Pal., p. 300.
1890. Dicranopora. Ulrich, Geol. Surv. Illinois, VIII, p. 389.
1897. Dicranopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 545.

Dicranopora emacerata (Nicholson).

1875. Ptilodictya emacerata. Nicholson, Ann. Mag. Nat. Hist., ser. 4, XV, p. 179, pl. xiv, 3–3*b*.
1875. Ptilodictya emacerata. Nicholson, Pal. Ohio, II, p. 261, pl. xxv, 5–5*b*.
1889. Dicranopora emacerata. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 40.
1895. Dicranopora emacerata. Whiteaves, Pal. Foss., III, p. 118.
Cincinnati (Lorraine and Richmond): Cincinnati, Ohio, and vicinity; Stony Mountain, Manitoba.

Dicranopora fragilis (Billings).

1866. Ptilodictya fragilis. Billings, Catal. Sil. Foss. Anticosti, p. 9.
1882. Stictopora fragilis. Whitfield, Geol. Surv. Wisconsin, IV, p. 253, pl. xi, 24.
1889. Dicranopora fragilis. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 40.
1895. Dicranopora fragilis. Whiteaves, Pal. Foss., III, p. 118.
Anticosti: Anticosti Island.
Cincinnati (Richmond): Iron Ridge, Wisconsin; Stony Mountain, Manitoba.

Dicranopora granulosa (Hall and Simpson).

1883. Escharopora (Ptilodictya) lirata (in part). Hall, Rep. State Geologist New York for the year 1882, pl. xvii, 5, 6.
1887. Rhinidictya ? granulosa. Hall and Simpson, Pal. New York, VI, p. 40, pl. xvii, 5, 6, pl. xxiii A, 18, 19.
1897. Rhinidictya granulosa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. x, 3–5.
Lower Helderberg: Clarksville, New York.

Dicranopora internodia (Miller and Dyer).

1878. Ptilodictya internodia. Miller and Dyer, Contr. to Pal., No. 2, p. 7, pl. iv, 7, 7*a*.
1882. Dicranopora internodia. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 166, pl. vii, 9, 9*a*.
1889. Dicranopora internodia. Miller, North American Geol. Pal., fig. 471 (p. 300).
Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.
Obs. See also Helopora ? ? meeki James.

Dicranopora lata Ulrich. See Rhinidictya lata (Ulrich).

Dicranopora nitidula (Billings).

1866. Ptilodictya nitidula. Billings, Catal. Sil. Foss. Anticosti, p. 9.
1889. Dicranopora nitidula. Miller, North American Geol. Pal., p. 300.
Cincinnati (Richmond): Anticosti Island.

Dicranopora parva Ami. Not recognizable.

1892. Dicranopora parva. Ami, Canadian Record of Science, V, p. 99.
Trenton: Gagnon's Beach, Quebec.

Dicranopora trentonensis Ulrich. See Rhinidictya trentonensis (Ulrich).

Didymopora Ulrich. See Fistulipora McCoy.

DIPLOCLEMA Ulrich. Genotype: Diploclema trentonense Ulrich.

1890. Diploclema. Ulrich, Geol. Surv. Illinois, VIII, p. 368.
1889. Diploclema. (Ulrich, in press), Miller, North American Geol. Pal., p. 300.
1896. Diploclema. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 262.

Diploclema sparsum (Hall).

1852. Trematopora sparsa. Hall, Pal. New York, II, p. 155, pl. xl A, 12*a–d*.
1890. Diploclema sparsum. Ulrich, Geol. Surv. Illinois, VIII, p. 369, pl. liii, 10.
Niagara: Lockport, New York.

Diploclema trentonense Ulrich.

1890. Diploclema trentonense. Ulrich, Geol. Surv. Illinois, VIII, p. 369, pl. liii, 9–9*c*.
Trenton: Trenton Falls, New York.

Diplopora Young and Young. See Diploporaria.

DIPLOPORARIA.[1] Genotype: Glauconome (Diplopora) marginalis Young and Young.

1875. Diplopora. Young and Young, Proc. Nat. Hist. Soc. Glasgow, II, p. 326.
1889. Diplopora. Miller, North American Geol. Pal., p. 300.
1890. Diplopora. Ulrich, Geol. Surv. Illinois, VIII, pp. 398, 636.
1895. Diplopora. Whidborne, Devon. Fauna England, (Pal. Soc. Publ.), II, pt. 4, p. 182.
1896. Diplopora. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 283.
1897. Diplopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 525.
1886. Nov. gen. Ulrich, Contr. American Pal., I, p. 5.

Diploporaria bifurcata (Ulrich).

1890. Diplopora bifurcata. Ulrich, Geol. Surv. Illinois, VIII, p. 637, pl. lxii, 12, 12*a*.
1894. Diplopora bifurcata. Keyes, Missouri Geol. Surv., V, p. 33.
1897. Diplopora bifurcata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 76, 77 (p. 526).
Chester: Chester, Illinois.

Diploporaria biserialis (Ulrich).

1890. Diplopora biserialis. Ulrich, Geol. Surv. Illinois, VIII, p. 637, pl. lxii, 11–11*c*.
Lower Coal Measures: Seville, Illinois.

DIPLOTRYPA Nicholson. Genotype: Favosites petropolitanus Pander.

1879. Diplotrypa. Nicholson, Pal. Tabulate Corals, p. 292.
1881. Diplotrypa. Nicholson, Genus Monticulipora, pp. 101, 155.

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[1] Proposed for Diplopora, preoccupied by Schafhäutl (see Neues Jahrbuch for Mineralogie, 1866, p. 565). We have been unable to refer to Schafhäutl's work, Lethæa geognostica von Südbayern, Leipzig, 1863.

DIPLOTRYPA Nicholson—Continued.

1882. Diplotrypa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V., p. 153.
1883. Diplotrypa. Foord, Contr. Micro-Pal. Cambro-Sil., p. 13.
1889. Diplotrypa. Miller, North American Geol. Pal., p. 187.
1890. Diplotrypa. Ulrich, Geol. Surv. Illinois, VIII, pp. 378, 457.
1893. Diplotrypa. Ulrich, Geol. Minnesota, III, p. 285.
1896. Diplotrypa. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 275; also (not Ulrich) p. 104 (in part).
1877. Callopora (not Hall). Dybowski, Die Chætetiden d. Ostb. Silur-Form., p. 106.

Diplotrypa ? dubia Ulrich.

1890. Diplotrypa ? dubia. Ulrich, Geol. Surv. Illinois, VIII, p. 459, pl. xxxiii 3–3*b*.
1894. Monticulipora dubia. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 182.
Cincinnati (Richmond): Wilmington, Illinois.

Diplotrypa infida Ulrich. See Mesotrypa infida (Ulrich).

Diplotrypa limitaris Ulrich.

1893. Diplotrypa limitaris. Ulrich, Geol. Minnesota, III, p. 286, fig. 18.
Trenton: Goodhue County, Minnesota.

Diplotrypa milleri Ulrich. See Mesotrypa milleri (Ulrich).

Diplotrypa neglecta Ulrich.

1893. Diplotrypa neglecta. Ulrich, Geol. Minnesota, III, p. 287, fig. 19.
Trenton: Hader, Minnesota.

Diplotrypa patella Ulrich. See Mesotrypa patella (Ulrich).
Diplotrypa Quebecensis Ami. See Mesotrypa quebecensis (Ami).
Diplotrypa regularis Foord. See Mesotrypa regularis (Foord).

Diplotrypa westoni Ulrich.

1889. Diplotrypa Westoni. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 30, pl. viii, 4–4*b*.
1896. Diplotrypa Westoni. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 457 (p. 274).
1897. Diplotrypa Westoni. Whiteaves, Pal. Foss., III, part III, p. 163.
Trenton: Big Island, Lake Winnipeg, Manitoba.

DISCOTRYPA Ulrich. Genotype: Chætetes elegans Ulrich.

1882. Discotrypa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 155.
1889. Discotrypa. Miller, North American Geol. Pal., p. 300.
1890. Discotrypa. Ulrich, Geol. Surv. Illinois, VIII, p. 378.

Discotrypa ? devonica Ulrich.

1886. Discotrypa devonica. Ulrich, Contr. American Pal., I, p. 25, pl. ii, 8, 8*a*.
Hamilton: Falls of the Ohio.

Discotrypa elegans (Ulrich).

1879. Chætetes elegans. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 130, pl. xii, 12, 12*a*.
1883. Discotrypa elegans. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 163, pl. vii, 1–1*b*.
1888. Monticulipora elegans. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 165.

Discotrypa elegans (Ulrich)—Continued.

1894. Monticulipora elegans. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 180.

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

DITTOPORA Dybowski. Genotype: Dittopora clavæformis Dybowski.

1877. Dittopora. Dybowski, Die Chætetiden der Ostbaltischen Silur-form., p. 84.

1881. Dittopora. Nicholson, Genus Monticulipora, p. 234.

Obs. This genus was established for a group of monticuliporoids occurring in the Silurian of Russia. The name has not become current in American literature.

DRYMOTRYPA Ulrich. Genotype: Retepora diffusa Hall.

1890. Drymotrypa. Ulrich, Geol. Surv, Illinois, VIII, p. 399.

1892. Drymotrypa. Miller, North American Geol. Pal., First Appendix, p. 684.

1897. Thamnocella. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 525.

Drymotrypa cisseis (Hall).

1879. Thamniscus ? Cisseis. Hall, Thirty-second Ann. Rep. New York State Museum, p. 176 (reprint 1880, p. 38).

1883. Thamniscus ? Cisseis. Hall, Rep. State Geologist New York for the year 1882, pl. xxii, 23–30.

1887. Thamniscus ? Cisseis. Hall and Simpson, Pal. New York, VI, p. 42, pl. xxii, 23–30.

1890. Drymotrypa cisseis. Ulrich, Geol. Surv. Illinois, VIII, p. 399.

1897. Thamnocella Cisseis. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. ix, 9–13.

Lower Helderberg: Clarksville, New York.

Drymotrypa dichotoma (Ulrich).

1890. Drymotrypa dichotoma. Ulrich, Geol. Surv. Illinois, VIII, p. 399, pl. liii, 6.

Trenton: Montreal, Canada.

Drymotrypa diffusa (Hall).

1852. Retepora diffusa. Hall, Pal. New York, II, p. 160, pl. xl C, 1*a–f*.

1890. Drymotrypa diffusa. Ulrich, Geol. Surv. Illinois, VIII, pl. liii, 7–7*b*.

Niagara: Lockport, New York.

Drymotrypa niagarensis (Hall).

1876. Thamniscus ? Niagarensis. Hall, Twenty-eighth Ann. Rep. New York State Mus. (documentary edition), pl. xi, 22–25; ibid., (Museum edition, 1879), p. 126, pl. xi, 22–25.

1882. Thamniscus niagarensis. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 254, pl. x, 22–25.

1890. Drymotrypa niagarensis. Ulrich, Geol. Surv. Illinois, VIII, p. 399.

1897. Thamniscus Niagarensis. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. ix, 15–17.

Niagara: Waldron, Indiana.

Dybowskia Waagen and Pichl. See Fistulipora McCoy.

Dybowskiella Waagen and Wentzel. See Fistulipora McCoy.

Enallopora D'Orbigny. Genotype: Gorgonia perantiqua Hall.

1850. Enallopora. D'Orbigny, Prod. de Pal., I, p. 22.

1889. Enallopora. Miller, North American Geol. Pal., p. 300.

Obs. For objections to the use of this name, see Geol. Surv. Illinois, VIII, p. 683.

Enallopora cinctosa Miller. See Mitoclema cinctosum Ulrich.

Enallopora perantiqua D'Orbigny. See Gorgonia ? perantiqua Hall.

ERIDOPORA Ulrich. Genotype: Eridopora macrostoma Ulrich.

1882. Eridopora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, pp. 137, 157.
1889. Eridopora. Miller, North American Geol. Pal., p. 301.
1890. Eridopora. Ulrich, Geol. Surv. Illinois, VIII, p. 382.
1896. Eridopora. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 269.
1897. Eridopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 561.
1886. Pileotrypa. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, expl. pl. xxx. (Not defined.)
1887. Pileotrypa. Hall and Simpson, Pal. New York, VI, p. xvi.
1889. Pileotrypa. Miller, North American Geol. Pal., p. 315.
1897. Pileotrypa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 562.

Eridopora ? clivulata (Hall).

1883. Lichenalia clivulata. Hall, Trans. Albany Institute, X, p. 151 (abstract, 1881, p. 9).
1886. Lichenalia (Pileotrypa) clivulata. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxxi, 30–33.
1887. Lichenalia (Pileotrypa) clivulata. Hall and Simpson, Pal. New York, VI, p. 83, pl. xxxi, 30–33.
1897. Pileotrypa clivulata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxiii, 8.
Hamilton: Falls of the Ohio.

Eridopora denticulata (Hall).

1883. Lichenalia denticulata. Hall, Trans. Albany Institute, X, p. 149 (abstract, 1881, p. 8).
1883. Lichenalia denticulata. Hall, Rep. State Geologist New York for the year 1882, pl. (26) xxiv, 21, 22, 27.
1886. Lichenalia (Pileotrypa) denticulata. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxx, 12–20.
1887. Lichenalia (Pileotrypa) denticulata. Hall and Simpson, Pal. New York, VI, p. 84, pl. xxvi, 21, 22, 27, pl. xxx, 12–20.
1897. Pileotrypa denticulata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxiii, 12.
1886. Eridopora minima. Ulrich, Contr. American Pal., I, p. 21, pl. ii, 6, 6*a*.
Hamilton: Falls of the Ohio.

Eridopora macrostoma Ulrich.

1882. Eridopora macrostoma. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 137, pl. vi, 2, 2*a*.
1884. Eridopora macrostoma. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, pl. iii, 8.
1897. Eridopora macrostoma. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 128 (p. 561).
Chester: Sloans Valley, Smithland, and Grayson Springs, Kentucky.

Eridopora minima Ulrich. See Eridopora denticulata (Hall).

Eridopora punctifera Ulrich.

1882. Eridopora punctifera. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 138, pl. vi, 3.
Chester: Sloans Valley, Kentucky.

ERIDOTRYPA Ulrich. Genotype: Eridotrypa mutabilis Ulrich.

1890. Batostomella (in part). Ulrich, Geol. Surv. Illinois, VIII, pp. 375, 432.
1893. Eridotrypa. Ulrich, Geol. Minnesota, III, p. 264.

Eridotrypa appressa (Ulrich).

1890. Monotrypella appressa. Ulrich, Geol. Surv. Illinois, VIII, p. 453, pl. xlvi, 1–1*e* (on plate called Monotrypella simplex in error).
Hamilton: Rock Island, Illinois; Davenport, Iowa.

Eridotrypa briareus (Nicholson).

1875. Chætetes briareus. Nicholson, Pal. Ohio, II, p. 202, pl. xxi, 13–13*b*.
1881. Monticulipora (Monotrypa) briareus. Nicholson, Genus Monticulipora, p. 198, pl. ii, 5–5*c*.
1882. Monotrypella briarea. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, pp. 248, 256.
1888. Monticulipora briarea. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 172.
1894. Monticulipora briarea. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 191.
Trenton: Covington, Kentucky; Maury County, Tennessee.

Eridotrypa corticosa (Hall).

1874. Trematopora corticosa. Hall, Twenty-sixth Ann. Rep. New York State Mus., p. 105.
1879. Chætetes corticosus. Hall, Thirty-second Ann. Rep. New York State Mus., p. 149 (reprint, 1880, p. 11).
1883. Trematopora (Chætetes) corticosa. Hall, Rep. State Geologist New York for the year 1882, pl. x, 1–10, pl. xiii, 4.
1887. Trematopora ? (Trematella ?) corticosa. Hall and Simpson, Pal. New York, VI, p. 15, pl. x, 1–10, pl. xiii, 4, pl. xxiii, 20.
1893. Eridotrypa corticosa. Ulrich, Geol. Minnesota, III, p. 265.
Lower Helderberg: Clarksville, New York.

Eridotrypa echinata (Hall).

1876. Trematopora echinata. Hall, Twenty-eighth Ann. Rep. New York State Mus. (documentary edition), pl. xi, 1–5; ibid. (Museum edition, 1879), p. 112, pl. xi, 1–5.
1882. Trematopora echinata. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 233, pl. x, 1–5.
1893. Eridotrypa echinata. Ulrich, Geol. Minnesota, III, p. 265.
Niagara: Waldron, Indiana.

Eridotrypa exigua Ulrich.

1893. Eridotrypa exigua. Ulrich, Geol. Minnesota, III, p. 266, pl. xxvi, 17–19.
Trenton: Cannon Falls, Minnesota.

Eridotrypa mutabilis Ulrich.

1893. Eridotrypa mutabilis. Ulrich, Geol. Minnesota, III, p. 265, pl. xxvi, 20–32.
Trenton: Goodhue, Ramsey, and Dakota counties, Minnesota; Decorah, Iowa; Neenah and Oshkosh, Wisconsin; central and northern Kentucky; Nashville and other localities in Tennessee; Ottawa, Canada.

Eridotrypa mutabilis-minor Ulrich.

1893. Eridotrypa mutabilis var. minor. Ulrich, Geol. Minnesota, III, p. 266, pl. xxvi, 20, 21, 29, 30.
Trenton: Cannon Falls and St. Paul, Minnesota.

Eridotrypa ? obliqua (Ulrich).

1890. Batostomella obliqua. Ulrich, Geol. Surv. Illinois, VIII, p. 433, pl. xlvi, 2–2*c*.
1893. Eridotrypa obliqua. Ulrich, Geol. Minnesota, III, p. 265.
Hamilton: Alpena, Michigan.

Eridotrypa simulatrix (Ulrich).

1890. Batostomella simulatrix. Ulrich, Geol. Surv. Illinois, VIII, p. 432, pl. xxxv, 1–1*g*.
1893. Eridotrypa simulatrix. Ulrich, Geol. Minnesota, III, p. 265.
1894. Monticulipora simulatrix. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 194.
Cincinnati (Richmond): Clarksville, Waynesville, and other localities in Ohio; Weisberg and Versailles, Indiana; Savannah, Illinois.

Eridotrypa trentonensis (Nicholson).

1863. Stenopora fibrosa (not of Goldfuss). Billings, Geol. Canada, p. 156, fig. 116 [Foord].
1881. Monticulipora (Heterotrypa) Trentonensis. Nicholson, Genus Monticulipora, p. 149, fig. 28.
1883. Monotrypella Trentonensis. Foord, Contr. Micro-Pal. Cambro-Sil., p. 15.
1883. Monotrypella trentonensis. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 83.
Trenton: Peterboro, Ontario.

Eschara Lamarck. Not Paleozoic.

Eschara bifurcata Van Cleve (Mss.). See Pachydictya bifurcata (Hall).

Eschara ? concentrica Prout. See Cystodictya ? concentrica (Prout).

Eschara ovatopora Troost. Not recognizable.

1840. Escharia ovatopora. Troost, Fifth Geol. Rep. Tennessee, p. 75.
Lower Silurian: Tennessee.

Eschara ramosa Van Cleve (Mss.). See Phænopora fimbriata (James).

Eschara reticulata Troost. Not recognizable.

1840. Escharia reticulata. Troost, Fifth Geol. Rep. Tennessee, p. 75.
Lower Silurian: Tennessee.

Eschara ? tuberculata Prout. Not recognizable.

1858. Eschara ? tuberculata. Prout, Trans. St. Louis Acad. Sci., I, p. 234.
Carboniferous: Organ Mountains, New Mexico.

Escharina ? distorta James. See Rhinopora verrucosa Hall.

ESCHAROPORA Hall. Genotype: Escharopora recta Hall.

1847. Escharopora. Hall, Pal. New York, I, p. 72.
1860. Escharopora. Eichwald, Lethæa Rossica, I, p. 435.
1889. Escharopora. Miller, North American Geol. Pal., p. 301.
1893. Escharopora. Ulrich, Geol. Minnesota, III, p. 167.
1896. Escharopora. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 279.
1886. Nicholsonia. Waagen and Wentzel, Pal. Indica, Ser. XIII, p. 874.
Ptilodictya (in part). Various authors.

Escharopora acuminata (James).

1875. Ptilodictya acuminata. James, Catal. Foss. Cincinnati Group, p. 3.
1893. Escharopora acuminata. Ulrich, Geol. Minnesota, III, p. 167.
Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

Escharopora angularis Ulrich.

1893. Escharopora angularis: Ulrich, Geol. Minnesota, III, p. 168, pl. xii, 1-4, 30, 31.

Trenton (Stones River): Minneapolis, Minnesota; High Bridge, Kentucky.

Escharopora (Ptilodictya) angusta Hall. See Ptilodictya angusta (Hall).

Escharopora (? Paleschara) bifoliata Hall. See Ptilodictya nebulosa (Hall).

Escharopora briareus (Ulrich).

1882. Ptilodictya briareus. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 165, pl. vii, 6-6*b*.

1893. Escharopora briareus. Ulrich, Geol. Minnesota, III, p. 167.

Trenton (Stones River): Lebanon, Shelbyville, and Columbia, Tennessee.

Obs. The form called by Safford Ptilodictya multiramis (not defined) is probably referable to this species.

Escharopora confluens Ulrich.

1893. Escharopora confluens. Ulrich, Geol. Minnesota, III, p. 171, pl. xiii, 1-11.

Trenton (Black River): Minneapolis, Minnesota.

Escharopora falciformis (Nicholson).

1849. Ptilodictya cruciformis. D'Orbigny, Prodr. de Pal., I, p. 21. (Not defined.)

1875. Ptilodictya falciformis. Nicholson, Ann. Mag. Nat. Hist., ser. 4, XV, p. 177, pl. xiv, 1-1*b*.

1875. Ptilodictya falciformis. Nicholson, Pal. Ohio, II, p. 259, pl. xxv, 7, 7*b*.

1875. Ptilodictya falciformis. Nicholson, Pal. Province Ontario, p. 13, fig. 2.

1883. Ptilodictya falciformis. (Van Cleve) Hall, Twelfth Ann. Rep. Indiana Geol. Nat. Hist., p. 265, pl. xii, 1.

1893. Escharopora falciformis. Ulrich, Geol. Minnesota, III, p. 167.

1881. Escharopora recta (not of Hall). Quenstedt, Roehren- und Sternkorallen, p. 94, pl. cxlvi, 69, 70.

1879. Crateripora lineata. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 30, pl. vii, 28, 28*a*.

1879. Crateripora lineata var. expansa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 30.

Trenton: Peterboro and Ottawa, Ontario (Nicholson).

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

Obs. Crateripora lineata and var. expansa were applied to the articulating basal socket of this species before its true nature was known.

Escharopora hilli (James).

1878. Ptilodictya Hilli. James, Paleontologist, No. 1, p. 4.

1882. Ptilodictya hilli. Ulrich, Jour. Cincinnati Nat. Hist., V, pl. vii, 7, 7*a*.

1885. Ptilodictya hilli. Nettleroth, Kentucky Fossil Shells, p. 30, pl. xxxv, 1, 2, 4, 5.

1893. Escharopora hilli. Ulrich, Geol. Minnesota, III, p. 167.

Cincinnati (Lorraine): Bank of the Ohio River at Cincinnati, Ohio (James); Boyle and Lincoln counties, Kentucky.

Escharopora libana (Safford).

1869. Ptilodictya ? libana. Safford, Geol. Tennessee, p. 286.

1893. Escharopora libana. Ulrich, Geol. Minnesota, III, p. 167.

Trenton (Stones River): Lebanon, Tennessee.

Obs. At present this is not a valid species, but we recognize it because Mr. Ulrich has the types and will figure and describe them under the above name.

Escharopora ? limitaris Ulrich.

1893. Escharopora ? limitaris. Ulrich, Geol. Minnesota, III, p. 172, figs. 9*a*–*b*, pl. xiii, 12, 13.

Trenton (Stones River and Black River): Minneapolis and Preston, Minnesota.

Escharopora lirata Hall. See Phænopora lirata (Hall) and Dicranopora granulosa (Hall).

Escharopora (Ptilodictya) lirata Hall. See Phænopora lirata (Hall) and Dicranopora granulosa (Hall).

Escharopora maculata (Ulrich).

1882. Ptilodictya maculata. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 163, pl. vi, 17, pl. vii, 4, 4*a*.

1890. Ptilodictya maculata. Ulrich, Geol. Surv. Illinois, VIII, fig. 6*b* (p. 317).

1893. Escharopora maculata. Ulrich, Geol. Minnesota, III, p. 167.

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

Escharopora nebulosa Hall. See Ptilodictya nebulosa (Hall).

Escharopora (Ptilodictya) nebulosa Hall. See Ptilodictya nebulosa (Hall).

Escharopora pavonia (D'Orbigny).

1849. Ptilodictya pavonia. D'Orbigny, Prodr. de Pal., I, p. 22.

1851. Chætetes pavonia. Milne-Edwards and Haime, Pol. Foss. Terr. Pal., p. 267, pl. xix, 4, 4*a*.

1860. Monticulipora pavonia. Milne-Edwards, Hist. Nat. des Corall., III, p. 276.

1866. Chætetes pavonia. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 116.

1880. Heterodictya pavonia. Ulrich, Catal. Foss. Cincinnati Group, p. 10.

1881. Chætetes pavonia. Quenstedt, Roehren- und Sternkorallen, p. 79, pl. cxlvi, 21–25.

1881. Monticulipora (Monotrypa) pavonia. Nicholson, Genus Monticulipora, p. 195, fig. 41, pl. vi, 3, 3*a*.

1882. Ptilodictya pavonia. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 163, pl. vii, 3-3*d*.

1888. Monticulipora pavonia. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 18.

1893. Escharopora pavonia. Ulrich, Geol. Minnesota, III, p. 167.

1895. Monticulipora pavonia. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 70.

1859. Cyclopora Jamesii. Prout, Trans. St. Louis Acad. Sci., I, p. 578.

1871. Stictopora clathratula. James, Catal. Foss. Cincinnati Group. (Not defined).

1874. Chætetes ? clathratulus. Nicholson, Quar. Jour. Geol. Soc. London, XXX, p. 509, pl. xxx, 1–1*b*.

1875. Chætetes ? clathratulus. Nicholson, Pal. Ohio, II, p. 209, pl. xxii, 2–2*b*.

1876. Chætetes ? clathratulus. Nicholson, Ann. Mag. Nat. Hist., ser. 4, XVIII, p. 91, pl. v, 9, 9*a*.

1886. Nicholsonia pavonica. Waagen and Wentzel, Pal. Indica, Ser. XIII, p. 874.

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

Escharopora ramosa (Ulrich).

1882. Ptilodictya ramosa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 164, pl. vii, 5, 5*a*.

1893. Escharopora ramosa. Ulrich, Geol. Minnesota, III, p. 167.

Escharopora ramosa (Ulrich)—Continued.

Trenton (Stones River): Lebanon, Tennessee; High Bridge, Kentucky. A variety, or perhaps new species, occurs in the Trenton of Deer Island, Lake Winnipeg, Canada.

Escharopora recta Quenstedt (not Hall). See Escharopora falciformis (Nicholson).

Escharopora recta Hall.

1847. Escharopora recta. Hall, Pal. New York, I, p. 73, pl. xxvi, 1*a–g*.

Trenton: Middleville and Jacksonburg, New York.

Escharopora recta-nodosa Hall.

1847. Escharopora recta var. nodosa. Hall, Pal. New York, I, p. 73, pl. xxvi, 2.

Trenton: Middleville and Jacksonburg, New York.

Escharopora subrecta (Ulrich).

1886. Ptilodictya subrecta. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Surv. Minnesota, p. 63.

1893. Escharopora subrecta. Ulrich, Geol. Minnesota, III, p. 168, pl. xii, 5–29.

Trenton (Black River): Minneapolis and other localities in Minnesota; Decorah, Iowa; Beloit, Wisconsin.

Escharopora tenuis Hall. See Phænopora tenuis (Hall).

Escharopora (Ptilodictya) tenuis Hall. See Phænopora tenuis (Hall).

EURYDICTYA Ulrich. Genotype: Eurydictya montifera Ulrich.

1890. Eurydictya. Ulrich, Geol. Surv. Illinois, VIII, pp. 389, 520.

1889. Eurydictya. (Ulrich in press), Miller, North American Geol. Pal., p. 301.

1893. Eurydictya. Ulrich, Geol. Minnesota, III, p. 138.

1897. Eurydictya. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 527.

Eurydictya calhounensis Ulrich.

1890. Eurydictya calhounensis. Ulrich, Geol. Surv. Illinois, VIII, p. 520, pl. xxx, 4–4*c*.

Trenton: Port au Gres, Calhoun County, Illinois.

Eurydictya montifera Ulrich.

1890. Eurydictya montifera. Ulrich, Geol. Surv. Illinois, VIII, p. 521, pl. xxx, 3–3*d*.

1897. Eurydictya montifera. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 80–82 (p. 528).

Cincinnati (Richmond); Wilmington, Illinois.

Eurydictya multipora (Hall).

1851. Phænopora multipora. Hall, Foster and Whitney's Rep. Geol. Lake Superior Land District, Part 2, p. 206, pl. xxiv, 1*a*, *b*.

1882. Phænopora ? multipora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 171, pl. viii, 7–7*b*.

1890. Eurydictya multipora. Ulrich, Geol. Surv. Illinois, VIII, p. 520.

1893. Eurydictya multipora (in part). Ulrich, Geol. Minnesota, III, p. 139, pl. vi, 9–11, pl. xiv, 9–11 (not pl. vii, 24, 29–31=Rhinidictya fidelis Ulrich).

1881. Ptilodictya antiqua. James, Paleontologist, No. 5, p. 37.

Trenton (Black River and Trenton): Escanaba River, Michigan (Hall); Burgin, Kentucky; Nashville, Tennessee; St. Paul, Minnesota.

Eurydictya sterlingensis Ulrich.

1890. Eurydictya sterlingensis. Ulrich, Geol. Surv. Illinois, VIII, p. 522, pl. xxx, 2, *2a*.

Cincinnati (Richmond): Sterling and South Elgin, Illinois.

EUSPILOPORA Ulrich. Genotype: Euspilopora serrata Ulrich.

1890. Euspilopora. Ulrich, Geol. Surv. Illinois, VIII, p. 389.

1889. Euspilopora. (Ulrich in press), Miller, North American Geol. Pal., p. 301.

1896. Euspilopora. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 280.

1897. Euspilopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 528.

Euspilopora ? barrisi Ulrich.

1890. Euspilopora ? barrisi. Ulrich, Geol. Surv. Illinois, VIII, p. 527, pl. xliii, 5–*5d*.

1897. Euspilopora barrisi. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 85, 86 (p. 529).

Hamilton: Buffalo, Iowa.

Euspilopora lobata (Hall and Simpson).

1887. Stictopora lobata. Hall and Simpson, Pal. New York, VI, p. 256.

Hamilton: Reeds Corners, near Canandaigua Lake, New York.

Euspilopora palmipes (Hall).

1883. Stictopora palmipes. Hall, Trans. Albany Institute, X, p. 189 (abstract, 1881, p. 189).

1884. Stictopora palmipes. Hall, Rep. State Geologist New York for the year 1883, p. 41.

1887. Stictopora palmipes. Hall and Simpson, Pal. New York, VI, p. 255, pl. lx, 19, 20.

1890. Euspilopora palmipes. Ulrich, Geol. Surv. Illinois, VIII, p. 527.

1891. Stictopora palmipes. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 48; Forty-fourth Ann. Rep. New York State Mus., p. 78.

1897. Stictopora palmipes. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. x, 20.

1899. Stictopora palmipes. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 174, fig. 69.

Hamilton: West Hamburg, Pavilion, and near Canandaigua Lake, New York.

Euspilopora serrata Ulrich.

1890. Euspilopora serrata. Ulrich, Geol. Surv. Illinois, VIII, p. 526, pl. xliii, 4–*4h*.

1897. Euspilopora serrata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 83, 84 (p. 529).

Hamilton: Buffalo, Iowa; near Alpena, Michigan.

EVACTINOPORA Meek and Worthen. Genotype: Evactinopora radiata Meek and Worthen.

1865. Evactinopora. Meek and Worthen, Proc. Acad. Nat. Sci. Philadelphia, p. 165.

1868. Evactinopora. Meek and Worthen, Geol. Surv. Illinois, III, p. 501.

1884. Evactinopora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 42.

1889. Evactinopora. Miller, North American Geol. Pal., p. 301.

1890. Evactinopora. Ulrich, Geol. Surv. Illinois, VIII, pp. 387, 508.

1896. Evactinopora. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 280.

EVACTINOPORA Meek and Worthen—Continued.

1897. Evactinopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 529.

Evactinopora grandis Meek and Worthen.

1868. Evactinopora grandis. Meek and Worthen, Geol. Surv. Illinois, III, p. 503, pl. xv, *2a*, *b*.

1890. Evactinopora grandis. Ulrich, Geol. Surv. Illinois, VIII, p. 511, pl. lxxiii, 4.

1894. Evactinopora grandis. Keyes, Missouri Geol. Surv., V, p. 19.

Burlington: Burlington, Iowa; Montezuma, Illinois.

Evactinopora quinqueradiata Ulrich.

1868. Evactinopora sexradiata (in part). Meek and Worthen, Geol. Surv. Illinois, III, pl. xvii, 3.

1890. Evactinopora quinqueradiata. Ulrich, Geol. Surv. Illinois, VIII, p. 510, pl. lxxiii, 1.

Burlington: Burlington, Iowa; Montezuma, Illinois.

Evactinopora radiata Meek and Worthen.

1865. Evactinopora radiata. Meek and Worthen, Proc. Acad. Nat. Sci. Philadelphia, p. 165.

1868. Evactinopora radiata. Meek and Worthen, Geol. Surv. Illinois, III, p. 502, pl. xvii, *2a*, *b*.

1884. Evactinopora radiata. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 42, pl. ii, 1–1*c*.

1890. Evactinopora radiata. Ulrich, Geol. Surv. Illinois, VIII, p. 509, pl. lxxiii, 3, 3*a*.

1894. Evactinopora radiata. Keyes, Missouri Geol. Surv., V, p. 19.

Keokuk: Missouri (Meek and Worthen); Kings Mountain, Kentucky (Ulrich).

Evactinopora sexradiata Meek and Worthen.

1868. Evactinopora sexradiata. Meek and Worthen, Geol. Surv. Illinois, III, p. 502, pl. xvii, 3.

1890. Evactinopora sexradiata. Ulrich, Geol. Surv. Illinois, VIII, p. 510, pl. lxxiii, 2–2*b*.

1894. Evactinopora sexradiata. Keyes, Missouri Geol. Surv., V, p. 18.

Burlington: Burlington, Iowa.

FAVICELLA Hall and Simpson. Genotype: Thallostigma inclusa Hall.

1887. Favicella. Hall and Simpson, Pal. New York, VI, p. xviii.

1889. Favicella. Miller, North American Geol. Pal., p. 301.

1897. Favicella. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 556.

1897. Fistuliporidra. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 606.

Obs. This genus may be a synonym for Selenopora.

Favicella inclusa (Hall).

1883. Thallostigma inclusa. Hall, Trans. Albany Institute, X, p. 188 (abstract, 1881, p. 188).

1884. Thallostigma inclusapora (in error). Hall, Rep. State Geologist New York for the year 1883, p. 33.

1887. Favicella inclusa. Hall and Simpson, Pal. New York, VI, p. 234, pl. lviii, 21–23.

1897. Favicella inclusa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxiv, 15–17.

Hamilton: York, New York.

Favicella tessellata (Hall and Simpson).

1887. Lichenalia tessellata. Hall and Simpson, Pal. New York, VI, p. 207.
1888. Lichenalia tessellata. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. xv, 8–10; Forty-first Ann. Rep. New York State Mus., pl. xv, 8–10.
1897. Fistuliporidra tessellata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxii, 1–3.
Hamilton: Genesee Valley, New York.

Favosites Lamarck. At present considered a coral by most authors.

Favosites inexpectans Hall. See Monotrypa? helderbergiæ (Hall).

Favosites lycopodites Vanuxem. Not recognizable.

1842. Favosites lycopodites. Vanuxem, Geol. Rep. Third District New York, p. 46, fig. 3.
Trenton: New York.

Favosites minimus Hall (Thirty-second Ann. Rep. New York State Mus.). See Monotrypa spherica (Hall).

Favosites proximus Hall. See Monotrypa proxima (Hall).

Favosites sphericus Hall. See Monotrypa spherica (Hall).

FENESTELLA Lonsdale. (Not Fenestella Bolten 1798.) Genotype: Gorgonia antiqua Goldfuss. Accepted genotype: Fenestella plebeia McCoy.

1839. Fenestella. Lonsdale, Murchison's Silurian System, p. 677.
1841. Fenestella. Phillips, Pal. Foss., p. 22.
1844. Fenestella. McCoy, Synopsis Carb. Foss. Ireland, p. 200.
1845. Fenestella. Lonsdale, Russia and the Ural Mountains, I, Appendix A, p. 629.
1850. Fenestella. King, Mon. Perm. Foss., p. 34.
1854. Fenestella. McCoy, British Pal. Foss., p. 49.
1860. Fenestella. Eichwald, Lethæa Rossica, I, p. 356.
1874. Fenestella. Nicholson, Pal. Province Ontario, p. 104.
1881. Fenestella. Shrubsole, Quar. Jour. Geol. Soc. London, XXXVII, p. 179.
1882. Fenestella. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 150.
1883. Fenestella. Claypole, Quar. Jour. Geol. Soc. London, XXXIX, p. 31.
1885. Fenestella. Hall, Rep. State Geologist New York for the year 1884, p. 35.
1885. Fenestella. Waagen and Pichl, Pal. Indica, ser. XIII, pp. 773, 776.
1886. Fenestella. Ulrich, Contr. American Pal., I, p. 4.
1887. Fenestella. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 83.
1887. Fenestella. Hall and Simpson, Pal. New York, VI, p. xxii.
1889. Fenestella. Miller, North American Geol. Pal., p. 302.
1890. Fenestella. Ulrich, Geol. Surv. Illinois, VIII, pp. 395, 534.
1894. Fenestella. Počta, Syst. Sil. Bohême, VIII, t. 1, p. 40.
1895. Fenestella. Whidborne, Devon. Fauna England, (Pal. Soc. Publ.), II, pt. 4, p. 165.
1895. Fenestella. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 687, 724; Forty-seventh Ann. Rep. New York State Mus., pp. 881, 918.
1896. Fenestella. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 281.
1897. Fenestella. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 500.
1899. Fenestella. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 159.
1850. Fenestrella (in error for Fenestella). D'Orbigny, Prodr. de Pal., I, p. 44.

FENESTELLA Lonsdale—Continued.

1874. Actinostoma. Young and Young, Quar. Jour. Geol. Soc. London, XXX, p. 681.

1885. Actinostoma. Vine, Proc. Yorkshire Geol. Polyt. Soc., IX, p. 84.

1895. Flabelliporina. Simpson, Thirteenth Ann. Rep. State Geol. New York for the year 1893, pp. 703, 724; Forty-seventh Ann. Rep. New York State Mus., pp. 897, 918.

1897. Flabelliporina. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 521.

Obs. See also remark on Palæocoryne Duncan and Jenkins.

Fenestella (Hemitrypa) acaulis Hall. See Unitrypa acaulis (Hall).

Fenestella (Unitrypa) acaulis Hall. See Unitrypa acaulis (Hall).

Fenestella (Unitrypa) acaulis var. inclinis Hall. See Unitrypa acaulis-inclinis (Hall).

Fenestella (Unitrypa) acclivis Hall and Simpson. See Unitrypa acclivis (Hall and Simpson).

Fenestella acmea Hall. See Semicoscinium acmeum (Hall).

Fenestella aculeata Hall. See Polypora aculeata (Hall).

Fenestella (Polypora) aculeata Hall. See Polypora aculeata (Hall).

Fenestella acuticosta Roemer.

1860. Fenestella acuticosta. Roemer, Sil. Fauna West. Tennessee, p. 30, pl. ii, 15, 15*a*.

Niagara: Perry County, Tennessee.

Fenestella adnata Hall. See Reteporidra adnata (Hall).

Fenestella (Polypora) adnata Hall. See Reteporidra adnata (Hall).

Fenestella adornata Hall and Simpson.

1883. Fenestella sp. (?). Hall, Rep. State Geologist New York for the year 1882, pl. xxii, 7, 8.

1887. Fenestella adornata. Hall and Simpson, Pal. New York, VI, p. 66, pl. xxii, 7, 8.

Lower Helderberg: Clarksville, New York.

Fenestella adraste Hall.

1879. Fenestella Adraste. Hall, Thirty-second Ann. Rep. New York State Mus., p. 169 (reprint, 1880, p. 31).

1883. Fenestella Adraste. Hall, Rep. State Geologist New York for the year 1882, pl. xx, 20–22, 19 sp. (?).

1887. Fenestella Adraste. Hall and Simpson, Pal. New York, VI, p. 48, pl. xx, 19–22.

Lower Helderberg: Clarksville, New York.

Fenestella æqualis Hall.

1883. Fenestella æqualis. Hall, Trans. Albany Institute, X, p. 173 (abstract, 1881, p. 31).

1887. Fenestella æqualis. Hall and Simpson, Pal. New York, VI, p. 112, pl. xlvi, 27–31.

Hamilton: Falls of the Ohio. (In the Trans. Albany Institute, X, p. 173, the locality is given Clarence Hollow, New York.)

Fenestella æsyle Hall.

1879. Fenestella Æsyle. Hall, Thirty-second Ann. Rep. New York State Mus., p. 166 (reprint, 1880, p. 28).

Fenestella æsyle Hall—Continued.

1883. Fenestella Æsyle. Hall, Rep. State Geologist New York for the year 1882, pl. xix, 11–13.

1887. Fenestella Æsyle. Hall and Simpson, Pal. New York, VI, p. 46, pl. xix, 11–13.

Lower Helderberg: Clarksville, New York.

Fenestella albida Hall.

1887. Fenestella albida. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 48, pl. vii, 1–7.

1888. Fenestella albida. Ulrich, Bull. Denison Univ., IV, p. 65.

Waverly: Richfield, Ohio.

Fenestella albida var. richfieldensis Ulrich. See Fenestella richfieldensis Ulrich.

Fenestella althæa Hall.

1879. Fenestella Althæa. Hall, Thirty-second Ann. Rep. New York State Mus., p. 166 (reprint, 1880, p. 28).

1883. Fenestella althæa. Hall, Rep. State Geologist New York for the year 1882, pl. xix, 17–19.

1887. Fenestella althæa. Hall and Simpson, Pal. New York, VI, p. 48, pl. xix, 17–19.

Lower Helderberg: Albany County, New York.

Fenestella ambigua Hall. See Loculipora ambigua (Hall).

Fenestella angulata Hall. Not recognized.

1883. Fenestella angulata. Hall, Trans. Albany Institute, X, p. 170 (abstract, 1881, p. 28).

Upper Helderberg: New York.

Fenestella angustata Hall.

1884. Fenestella angustata. Hall, Thirty-sixth Ann. Rep. New York State Mus., p. 60.

1887. Fenestella angustata. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 54.

1888. Fenestella angustata. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. viii, 1–8; Forty-first Ann. Rep. New York State Mus., pl. viii, 1-8.

Hamilton: Alden, New York.

Fenestella (Hemitrypa) anonyma Hall. See Unitrypa anonyma (Hall).

Fenestella aperta Hall.

1887. Fenestella aperta. Hall, Sixth Ann. Rep. New York State Geologist for the year 1886, p. 58, pl. iv, 1–5.

1888. Fenestella aperta. Ulrich, Bull. Denison Univ., IV, p. 66.

Waverly: Richfield, Ohio.

Fenestella arkonensis Whiteaves.

1874. Fenestella tenuiceps (not of Hall). Nicholson, Pal. Province Ontario, p. 106, fig. 44.

1898. Fenestella Arkonensis. Whiteaves, Contr. Canad. Pal., I, p. 379.

Hamilton: Near Arkona, Ontario.

Fenestella Arta Hall. See Polypora arta (Hall).

Fenestella (Polypora) Arta Hall. See Polypora arta (Hall).

Fenestella (Polypora) aspectans Hall. See Polypora aspectans (Hall).

Fenestella aspectus (in error for aspectans) Hall. See Polypora aspectans (Hall).

Fenestella assita Hall.

1884. Fenestella assita. Hall, Thirty-sixth Ann. Rep. New York State Mus., p. 64.
1887. Fenestella assita. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 56, pl. vii, 8–11.
Hamilton: York, New York.

Fenestella banyana Prout.

1859. Fenestella banyana. Prout, Trans. St. Louis Acad. Sci., I, p. 450, pl. xviii, 4–4*b*.
1894. Fenestella banyana. Keyes, Missouri Geol. Surv., V, p. 23.
Warsaw: Barretts Station, Missouri.

Fenestella bellistriata Hall.

1883. Fenestella bellastriata. Hall, Trans. Albany Institute, X, p. 63 (abstract, 1879, p. 7).
1882. Fenestella bellastriata. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 252.
1890. Fenestella bellistriata (?). Ulrich, Geol. Surv. Illinois, VIII, pl. liv, 2.
Niagara: Waldron, Indiana.

Fenestella bicornis Spencer. Not recognizable.

1884. Fenestella bicornis. Spencer, Trans. St. Louis Acad. Sci., IV, p. 604, pl. vii, 2.
1884. Fenestella bicornis. Spencer, Bull. Mus. Univ. State Missouri, I, p. 55, pl. vii, 2.
Clinton: Hamilton, Ontario.

Fenestella bifurca Ulrich. See Ptiloporella ? bifurca (Ulrich).

Fenestella bifurcata Prout. Not recognizable; name also preoccupied by Roemer.

1866. Fenestella bifurcata. Prout, Trans. St. Louis Acad. Sci., II, p. 411.
Geological horizon and locality not given.

Fenestella bigeneris Ulrich. See Fenestella perplexa Hall.

Fenestella biimbricata Hall. See Semicoscinium biimbricatum (Hall).

Fenestella (Hemitrypa) biordo Hall and Simpson. See Hemitrypa biordo (Hall).

Fenestella (Hemitrypa) biserialis Hall. See Hemitrypa biserialis (Hall).

Fenestella (Hemitrypa) biserialis var. exilis Hall. See Hemitrypa biserialis-exilis (Hall).

Fenestella biseriata Hall.

1883. Fenestella biseriata. Hall, Trans. Albany Institute, X, p. 166 (abstract, 1881, p. 25).
1887. Fenestella biseriata. Hall and Simpson, Pal. New York, VI, p. 113, pl. xlii, 16–18.
Upper Helderberg: Cherry Valley, New York.

Fenestella biserrulata Hall. See Semicoscinium biserrulatum (Hall).

Fenestella brevilinea Hall. See Semicoscinium exornatum (Hall).

Fenestella brevisulcata Hall. See Polypora brevisulcata (Hall).

Fenestella (Polypora) brevisulcata Hall. See Polypora brevisulcata (Hall).

Fenestella burlingtonensis Ulrich.

1888. Fenestella burlingtonensis. Ulrich, Bull. Denison Univ., IV, p. 71.
1890. Fenestella burlingtonensis. Ulrich, Geol. Surv. Illinois, VIII, p. 536. pl. xlix, 1, 1*a*.
Burlington: Burlington, Iowa.
Waverly: Lodi, Ohio.

Fenestella (Polypora) carinella, Hall. See Polypora carinella (Hall and Simpson).

Fenestella cavernosa Ulrich.

1888. Fenestella cavernosa. Ulrich, Bull. Denison Univ., IV, p. 69, pl. xiii, 7–7*b*.
Waverly: Sciotoville, Ohio.

Fenestella celsipora Hall. See Polypora celsipora (Hall).

Fenestella (Polypora) celsipora Hall. See Polypora celsipora (Hall).

Fenestella celsipora var. minima Hall. See Polypora celsipora-minima (Hall).

Fenestella (Polypora) celsipora var. minima Hall. See Polypora celsipora-minima (Hall).

Fenestella celsipora var. minor Hall. See Polypora celsipora-minor (Hall).

Fenestella (Polypora) celsipora var. minor Hall. See Polypora celsipora-minor (Hall).

Fenestella cestriensis Ulrich.

1890. Fenestella cestriensis. Ulrich, Geol. Surv. Illinois, VIII, p. 547, pl. li, 5–5*b*.
1894. Fenestella cestriensis. Keyes, Missouri Geol. Surv., V, p. 24.
Chester: Chester, Kaskaskia, Anna, and other localities in Illinois; Sloans Valley and Litchfield, Kentucky.

Fenestella cinctuta Hall. See Reteporidra cinctuta (Hall).

Fenestella (Lyropora) cinctuta Hall. See Reteporidra cinctuta (Hall).

Fenestella cingulata Ulrich.

1890. Fenestella cingulata. Ulrich, Geol. Surv. Illinois, VIII, p. 543, pl. lii, 1–1*d*.
1894. Fenestella cingulata. Keyes, Missouri Geol. Surv., V, p. 23.
Keokuk: Nauvoo, Illinois; Keokuk, Iowa.

Fenestella (Loculipora) circumstata Hall and Simpson. See Loculipora circumstata (Hall and Simpson).

Fenestella clathrata Hall and Simpson.

1887. Fenestella clathrata. Hall and Simpson, Pal. New York, VI, p. 117.
Upper Helderberg: Ontario, Canada.

Fenestella cleia Hall.

1879. Fenestella Cleia. Hall, Thirty-second Ann. Rep. New York State Mus., p. 169 (reprint, 1880, p. 31).
1883. Fenestella Cleia. Hall, Rep. State Geologist New York for the year 1882, pl. xx, 14, 15.
1887. Fenestella Cleia. Hall and Simpson, Pal. New York, VI, p. 45, pl. xx, 14, 15.
Lower Helderberg: Clarksville, New York.

Fenestella Cleis Hall. See Semicoscinium ? cleis (Hall).

Fenestella (Reteporina) coalescens Hall and Simpson. See Reteporina coalescens (Hall and Simpson).

Fenestella (Hemitrypa) columellata Hall. See Hemitrypa columellata (Hall).

Fenestella compacta Hall. See Polypora compacta (Hall).

Fenestella (Polypora) compacta Hall and Simpson. See Polypora compacta (Hall).

Fenestella compressa Hall. See Polypora compressa (Hall).

Fenestella (Polypora) compressa Hall and Simpson. See Polypora compressa (Hall).

Fenestella compressa Ulrich.

1890. Fenestella compressa. Ulrich, Geol. Surv. Illinois, VIII, p. 539, pl. l, 2*a*.
Keokuk: Kings Mountain, Kentucky.

Fenestella compressa var. nododorsalis Ulrich. See Fenestella nododorsalis Ulrich.

Fenestella conferta Hall. See Polypora conferta (Hall).

Fenestella confertipora Hall and Simpson. See Ptiloporella ? bifurca (Ulrich).

Fenestella (Ptiloporina) conica Hall and Simpson. See Ptiloporina conica (Hall and Simpson).

Fenestella (Isotrypa) conjunctiva Hall and Simpson. See Isotrypa conjunctiva (Hall).

Fenestella (Hemitrypa) conjunctiva Hall. See Isotrypa conjunctiva (Hall).

Fenestella conradi Ulrich.

1890. Fenestella conradi. Ulrich, Geol. Surv. Illinois, VIII, p. 553, pl. lii, 8, 8*a*.
Upper Coal Measures: Near Red Oak, Iowa.

Fenestella (Unitrypa?) consimilis Hall and Simpson. See Isotrypa consimilis (Hall and Simpson).

Fenestella Coronis Hall. See Semicoscinium coronis (Hall).

Fenestella corticata Prout.

1859. Fenestella corticata. Prout, Trans. St. Louis Acad. Sci., I, p. 230.
Carboniferous: Organ Mountains, New Mexico.

Fenestella crebescens Hall. See Polypora crebescens (Hall).

Fenestella (Polypora) crebescens Hall and Simpson. See Polypora crebescens (Hall).

Fenestella crebripora Hall.

1874. Fenestella crebripora. Hall, Twenty-sixth Ann. Rep. New York State Mus., p. 95.

1879. Fenestella crebripora. Hall, Thirty-second Ann. Rep. New York State Mus., p. 167 (reprint, 1880, p. 29).

1883. Fenestella crebripora. Hall, Rep. State Geologist New York for the year 1882, pl. xx, 1–3.

1887. Fenestella crebripora. Hall and Simpson, Pal. New York, VI, p. 43, pl. xx, 1–3.

Lower Helderberg: Clarksville, New York.

Fenestella cribrosa Nicholson (not Hall). Name preoccupied by Hall. See Fenestella nicholsoni Whiteaves.

Fenestella (Hemitrypa) cribrosa Hall. See Hemitrypa cribrosa (Hall.)

Fenestella? cribrosa Hall.

1852. Fenestella cribrosa. Hall, Pal. New York, II, p. 166, pl. xlD, 3*a*, *b*.
Niagara: Lockport, New York.

Fenestella cultellata Hall. See Polypora shumardi Prout.

Fenestella (Polypora) cultellata Hall. See Polypora shumardi Prout.

Fenestella cultrata Hall.

1883. Fenestella cultrata. Hall, Trans. Albany Institute, X, p. 171 (abstract, 1881, p. 29).
1886. Fenestella cultrata. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. l, 1–5.
1887. Fenestella cultrata. Hall and Simpson, Pal. New York, VI, p. 119, pl. l, 1–5.
Hamilton: Falls of the Ohio.

Fenestella curvata Hall.

1884. Fenestella curvata. Hall, Thirty-sixth Ann. Rep. New York State Mus., p. 69.
1887. Fenestella curvata. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 50, pl. vi, 1–9.
Hamilton: Moscow, New York.

Fenestella curvijunctura Hall.

1883. Fenestella curvijunctura. Hall, Trans. Albany Institute. X, p. 171 (abstract, 1881, p. 29).
1887. Fenestella curvijunctura. Hall and Simpson, Pal. New York, VI, p. 107, pl. xlvi, 1–5.
Hamilton: Falls of the Ohio.

Fenestella cylindracea Hall. See Polypora cylindracea (Hall).

Fenestella Davidsoni Nicholson. See Semicoscinium davidsoni (Nicholson.)

Fenestella delicata Meek.

1871. Fenestella delicata. Meek, Proc. Acad. Nat. Sci. Philadelphia, p. 159.
1875. Fenestella delicata. Meek, Pal. Ohio, II, p. 273, pl. x, 2*a*–*d*.
Waverly: Lodi, Ohio.

Fenestella delicatula Ulrich.

1890. Fenestella delicatula. Ulrich, Geol. Surv. Illinois, VIII, p. 549, pl. lii, 2.
Base of Coal Measures: Seville, Illinois.

Fenestella depressa Hall.

1883. Fenestella depressa. Hall, Trans. Albany Institute, X, p. 172 (abstract, 1881, p. 30).
1886. Fenestella depressa. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xlv, 16, 17.
1887. Fenestella depressa. Hall and Simpson, Pal. New York, VI, p. 111, pl. xlv, 16, 17.
Hamilton: Falls of the Ohio.

Fenestella dilata Prout.

1866. Fenestella dilata. Prout, Trans. St. Louis Acad. Sci., II, p. 411.
Hamilton: Locality not given (Buffalo, Iowa?).

Fenestella dispanda Hall.

1886. Fenestella dispanda. Hall, Fifth Ann. Rep. State Geologist New York for the year 1883, pl. xliv, 1–4.

1887. Fenestella dispanda. Hall and Simpson, Pal. New York, VI, p. 114, pl. xliv, 1–4.

Upper Helderberg: Western New York.

Fenestella (Ptiloporina) disparilis Hall and Simpson. See Ptiloporina disparilis (Hall and Simpson).

Fenestella distans Hall. See Polypora distans (Hall).

Fenestella (Polypora) distans Hall. See Polypora distans (Hall).

Fenestella elegans Hall.

1852. Fenestella elegans. Hall, Pal. New York, II, p. 164, pl. xlD, 1*a–g*.

Niagara: Lockport and Rochester, New York.

Fenestella (Hemitrypa) elegantissima Hall. See Unitrypa ? elegantissima (Hall).

Fenestella (Unitrypa) elegantissima Hall. See Unitrypa ? elegantissima (Hall).

Fenestella elevatipora Ulrich.

1890. Fenestella elevatipora. Ulrich, Geol. Surv. Illinois, VIII, p. 549, pl. li, 3, 3*a*.

1894. Fenestella elevatipora. Keyes, Missouri Geol. Surv., V, p. 25.

Chester: Chester, Illinois; Crittenden County, Kentucky.

Fenestella elongata Hall. See Polypora elongata (Hall).

Fenestella (Polypora) elongata Hall. See Polypora elongata (Hall).

Fenestella emaciata Hall.

1884. Fenestella emaciata. Hall, Thirty-sixth Ann. Rep. New York State Mus., p. 68.

1887. Fenestella emaciata. Hall, Sixth Ann. Rep. State Geologist New York, for the year 1886, p. 57.

1888. Fenestella emaciata. Hall, Seventh Ann. Rep. State Geologist New York, for the year 1887, pl. viii, 9–13; Forty-first Ann. Rep. New York State Mus., pl. viii, 9–13.

1899. Fenestella emaciata. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 159, fig. 47.

Hamilton: Shore of Seneca Lake, New York.

Fenestella ? erectipora Hall.

1883. Fenestella erectipora. Hall, Trans. Albany Institute, X, p. 174 (abstract, 1881, p. 33).

1886. Fenestella erectipora. Hall, Fifth Ann. Rep. State Geologist New York, for the year 1885, pl. l, 15, 17.

1887. Fenestella erectipora. Hall and Simpson, Pal. New York, VI, p. 118, pl. l, 15, 17.

Upper Helderberg: Near Buffalo, New York.

Fenestella Eudora Hall. See Polypora eudora (Hall).

Fenestella (Polypora) Eudora Hall and Simpson. See Polypora eudora (Hall).

Fenestella Eudora? Hall (1883). See Polypora ? stricta (Hall and Simpson).

Fenestella exigua Ulrich.

1890. Fenestella exigua. Ulrich, Geol. Surv. Illinois, VIII, p. 545, pl. li, 1, 1*a*
Warsaw: Monroe County, Illinois.

Fenestella eximia Winchell.

1866. Fenestella eximia. Winchell, Rep. Lower Penin. Michigan, p. 92.
Hamilton: Petoskey, Michigan.

Fenestella exornata Hall. See Semicoscinium exornatum (Hall).

Fenestella (Hemitrypa) fastigata Hall. See Unitrypa fastigata (Hall).

Fenestella (Unitrypa) fastigata Hall and Simpson. See Unitrypa fastigata (Hall).

Fenestella (Hemitrypa) favosa Hall. See Hemitrypa favosa (Hall).

Fenestella (Unitrypa) ficticius Hall and Simpson. See Unitrypa ficticia (Hall and Simpson).

Fenestella filiformis Nicholson. Not recognizable.

1874. Fenestella filiformis. Nicholson, Geol. Mag., new ser., I, p. 199, pl. ix, 24.
1874. Fenestella filiformis. Nicholson, Pal. Province Ontario, p. 107, fig. 45.
Upper Helderberg: Wainfleet, Ontario.
Obs. This form was founded upon the outer covering of some species of Unitrypa, which has probably since been described under another name.

Fenestella filistriata Ulrich.

1890. Fenestella filistriata. Ulrich, Geol. Surv. Illinois, VIII, p. 535, pl. xlix, 2, 2*a*.
1894. Fenestella filistriata. Keyes, Missouri Geol. Surv., V, p. 22.
Burlington: Burlington, Iowa; Montezuma, Pike County, Illinois.

Fenestella filitexta Winchell.

1866. Fenestella filitexta. Winchell, Rep. Lower Penin. Michigan, p. 92.
Hamilton: Petoskey, Michigan.

Fenestella fistulata Hall. See Polypora fistulata (Hall).

Fenestella (Polypora) fistulata Hall. See Polypora fistulata (Hall).

Fenestella flabelliformis Hall. See Polypora flabelliformis (Hall).

Fenestella (Polypora) flabelliformis Hall. See Polypora flabelliformis (Hall).

Fenestella flexuosa Ulrich. See Reteporina flexuosa (Ulrich).

Fenestella foliata Ulrich.

1888. Fenestella foliata. Ulrich, Bull. Denison Univ., IV, p. 67, pl. xiii, 4–4*c*.
Waverly: Cuyahoga Valley, Ohio.

Fenestella ? frequens Hall.

1888. Fenestella frequens. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. ix, 12–15; Forty-first Ann. Rep. New York State Mus., pl. ix, 12–15.
Lower Helderberg: Clarksville, New York.

Fenestella funicula Ulrich.

1890. Fenestella funicula. Ulrich, Geol. Surv. Illinois, VIII, p. 542. pl. li, 6.
1894. Fenestella funicula. Keyes, Missouri Geol. Surv., V, p. 23.
Keokuk: Keokuk, Iowa.

Fenestella granifera Hall. See Semicoscinium graniferum (Hall).

Fenestella (Hemitrypa) granifera Hall. See Semicoscinium graniferum (Hall).

Fenestella granilinea Hall. See Polypora granilinea (Hall).

Fenestella (Polypora) granilinea Hall. See Polypora granilinea (Hall).

Fenestella granulosa Whitfield.

1878. Fenestella granulosa. Whitfield, Ann. Rep. Geol. Surv. Wisconsin for the year 1877, p. 68.

1882. Fenestella granulosa. Whitfield, Geol. Surv. Wisconsin, IV, p. 252, pl. xii, 1, 2.

1882. Fenestella oxfordensis. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 159, pl. vi, 13.

Cincinnati (Richmond): Delafield, Wisconsin; Oxford and Oregonia, Ohio.

Fenestella hemicycla Hall. See Semicoscinium labiatum (Hall).

Fenestella hemitrypa Prout. See Hemitrypa proutana Ulrich.

Fenestella herrickana Ulrich.

1888. Fenestella herrickana. Ulrich, Bull. Denison Univ., IV, p. 63, pl. xiii, 2–2*d*.

Waverly: Moot's Run and Richfield, Ohio.

Fenestella hestia Hall.

1879. Fenestella Hestia. Hall, Thirty-second Ann. Rep. New York State Mus., p. 168 (reprint, 1880, p. 30).

1883. Fenestella Hestia. Hall, Rep. State Geologist New York for the year 1882, pl. xx, 12, 13.

1887. Fenestella Hestia. Hall and Simpson, Pal. New York, VI, p. 45, pl. xx, 12, 13.

Lower Helderberg: Schoharie, New York.

Fenestella hexagonalis Hall. See Polypora hexagonalis (Hall).

Fenestella (Polypora) hexagonalis Hall. See Polypora hexagonalis (Hall).

Fenestella hexagonalis var. foraminulosa Hall. See Polypora hexagonalis-foraminulosa (Hall).

Fenestella (Polypora) hexagonalis var. foraminulosa Hall. See Polypora hexagonalis-foraminulosa (Hall).

Fenestella ? idalia Hall.

1874. Fenestella Idalia. Hall, Twenty-sixth Ann. Rep. New-York State Mus., p. 95.

1879. Fenestella Idalia. Hall, Thirty-second Ann. Rep. New York State Mus., p. 170 (reprint, 1880, p. 32).

1883. Fenestella Idalia. Hall, Rep. State Geologist New York for the year 1882, pl. xxi, 6–9.

1887. Fenestella Idalia. Hall and Simpson, Pal. New York, VI, p. 52, pl. xxi, 6–9.

Lower Helderberg: Clarksville, New York.

Fenestella Idothea Hall. See Polypora idothea (Hall).

Fenestella (Polypora) Idothea Hall and Simpson. See Polypora idothea (Hall).

Fenestella inæqualis Ulrich.

1890. Fenestella inæqualis. Ulrich, Geol. Surv. Illinois, VIII, p. 554, pl. lii, 9, 9*a*, pl. liv, 4, 4*a*.

Upper Coal Measures: Ball's Mill, Sangamon County, Illinois.

Fenestella (Ptiloporella) inæqualis Hall and Simpson. See Ptiloporella inæqualis (Hall and Simpson).

Fenestella incongruens Quenstedt. Not recognizable.

1881. Fenestella incongruens. Quenstedt, Roehren- und Sternkorallen, p. 173, pl. cl, 3.

Upper Helderberg: Sandusky, Ohio.

Fenestella inflexa Hall. See Semicoscinium inflexum (Hall).

Fenestella intermedia Prout.

1858. Fenestella intermedia. Prout, Trans. St. Louis Acad. Sci., I, p. 231.

Carboniferous: Organ Mountains, New Mexico.

Fenestella interrupta Hall. See Semicoscinium interruptum (Hall).

Fenestella juncea Hall.

1879. Fenestella junceus. Hall, Thirty-second Ann. Rep. New York State Mus., p. 168 (reprint, 1880, p. 30).

1883. Fenestella junceus. Hall, Rep. State Geologist New York for the year 1882, pl. xx, 16–18.

1887. Fenestella junceus. Hall and Simpson, Pal. New York, VI, p. 44, pl. xx, 16–18.

Lower Helderberg: Clarksville, New York.

Fenestella labiata Hall. See Semicoscinium labiatum (Hall).

Fenestella (Polypora) lævistriata Hall. See Polypora lævistriata (Hall).

Fenestella largissima Hall. See Polypora largissima (Hall).

Fenestella (Polypora) largissima Hall. See Polypora largissima (Hall).

Fenestella (Hemitrypa) lata Hall. See Unitrypa lata (Hall).

Fenestella (Unitrypa) lata Hall and Simpson. See Unitrypa lata (Hall).

Fenestella laticarina Simpson. Not recognizable.

1897. Fenestella laticarina. Simpson, Fourteenth Ann. Rep. State Geologis New York for the year 1894, pl. ii, 12.

Obs. Simpson nowhere else alludes to this species, nor does he state th authorship. Geological horizon and locality are not given.

Fenestella (Ptiloporella) laticrescens Hall and Simpson. See Ptiloporella laticrescens (Hall and Simpson).

Fenestella latijunctura Hall. See Semicoscinium latijuncturum (Hall).

Fenestella latitruncata Hall. See Polypora latitruncata (Hall).

Fenestella (Polypora) latitruncata Hall. See Polypora latitruncata (Hall).

Fenestella (Archimedes) laxa Hall. See Archimedes laxus (Hall).

Fenestella levinodata Hall. See Polypora levinodata (Hall).

Fenestella (Polypora) levinodata Hall. See Polypora levinodata (Hall).

Fenestella (Polypora) Lilæa Hall. See Polypora lilæa (Hall).

Fenestella limbata Foerste.

1887. Fenestella limbatus. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 83, pl. vii, 10*a–d*.

Coal Measures: Flint Ridge, Ohio.

Fenestella limbatus var. remotus Foerste. See Fenestella remota Foerste.

Fenestella limitaris Ulrich.

1890. Fenestella limitaris. Ulrich, Geol. Surv. Illinois, VIII, p. 538, pl. xlix, 4, 4*a*.

1894. Fenestella limitaris. Keyes, Missouri Geol. Surv., V, p. 23.

Keokuk: Keokuk and Bentonsport, Iowa.

Fenestella lineanoda Hall. Not recognized.

1883. Fenestella lineanoda. Hall, Trans. Albany Institute, X, p. 163 (abstract, 1881, p. 22).

Upper Helderberg: Locality not given.

Fenestella (Tectulipora) loculata Hall. See Loculipora loculata (Hall).

Fenestella lodiensis Meek.

1875. Fenestella multiporata (McCoy) var. lodiensis. Meek, Pal. Ohio, II, p. 274, pl. x, 1*a–c*.

Waverly: Lodi, Ohio.

Fenestella lunulata Hall. See Semicoscinium lunulatum (Hall).

Fenestella lyelli Dawson.

1878. Fenestella lyelli. Dawson, Acadian Geol., ed. 3, p. 288, fig. 86.

Carboniferous: Windsor and Stewiacke, Nova Scotia.

Fenestella (Lyropora) lyra Hall. See Lyropora subquadrans-lyra (Hall).

Fenestella magnifica Nicholson.

1874. Fenestella magnifica. Nicholson, Geol. Mag., new ser., I, p. 197, pl. ix, 22.

1874. Fenestella magnifica. Nicholson, Pal. Province Ontario, p. 104, fig. 41*a*, *b*.

Upper Helderberg: Port Colborne, Ontario.

Fenestella marcida Hall.

1884. Fenestella marcida. Hall, Thirty-sixth Ann. Rep. New York State Mus., p. 61.

1887. Fenestella marcida. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 51, pl. vi, 10–15.

Hamilton: Darien and Moscow, New York.

Fenestella marginalis Nicholson.

1874. Fenestella marginalis. Nicholson, Geol. Mag., new ser., I, p. 197, pl. ix, 23.

1874. Fenestella marginalis. Nicholson, Pal. Province Ontario, p. 105, fig. 42.

Upper Helderberg: Port Colborne, Ontario.

Fenestella meekana Ulrich.

1888. Fenestella meekana. Ulrich, Bull. Denison Univ., IV, p. 64, pl. xiii, 1–1*b*.

Waverly: Richfield and Lodi, Ohio.

Fenestella (Archimedes) Meekana Hall. See Archimedes meekanus (Hall).

Fenestella microtrema D'Orbigny. Not recognizable.

1850. Fenestrella microtrema. D'Orbigny, Prodr. de Pal., I, p. 45.

"Etats-Unis, Kentucky, failles de l'Ohio."

Fenestella mimica Ulrich.

1890. Fenestella mimica. Ulrich, Geol. Surv. Illinois, VIII, p. 552, pl. lii, 7, 7*a*.

Coal Measures: Seville, Illinois.

Fenestella modesta Ulrich.

1890. Fenestella modesta. Ulrich, Geol. Surv. Illinois, VIII, p. 550, pl. lii, 3–3*b*.
Coal Measures: Knox County and Seville, Illinois.

Fenestella multiplex Hall. See Polypora multiplex (Hall).

Fenestella (Polypora) multiplex Hall. See Polypora multiplex (Hall).

Fenestella multiporata (McCoy), var. lodiensis Meek. See Fenestella lodiensis Meek.

Fenestella multispinosa Ulrich.

1890. Fenestella multispinosa. Ulrich, Geol. Surv. Illinois, VIII, p. 540, pl. l, 3–3*d*.

1894. Fenestella multispinosa. Keyes, Missouri Geol. Surv., V, p. 23.
Keokuk: Bentonsport and Keokuk, Iowa; Kings Mountain, Kentucky.

Fenestella mutabilis Hall. See Polypora mutabilis (Hall).

Fenestella (Polypora) mutabilis Hall. See Polypora mutabilis (Hall).

Fenestella (Unitrypa) nana Hall and Simpson. See Unitrypa nana Hall and Simpson.

Fenestella nervata Nicholson. See Ptiloporella nervata (Nicholson).

Fenestella Nervia Hall. See Unitrypa nervia (Hall).

Fenestella (Hemitrypa) Nervia Hall. See Unitrypa nervia (Hall).

Fenestella (Unitrypa) Nervia Hall and Simpson. See Unitrypa nervia (Hall).

Fenestella (Hemitrypa) Nervia var. constricta Hall. See Unitrypa nervia-constricta (Hall).

Fenestella (Unitrypa) Nervia var. constricta Hall and Simpson. See Unitrypa nervia-constricta (Hall).

Fenestella nexa Hall. See Polypora nexa (Hall).

Fenestella (Polypora) nexa Hall. See Polypora nexa (Hall).

Fenestella ? nexilis Hall.

1888. Fenestella nexilis. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. x, 14, 15; Forty-first Ann. Rep. New York State Mus., pl. x, 14, 15.
Upper Helderberg: Locality not given.

Fenestella nicholsoni Whiteaves.

1874. Fenestella cribrosa (not of Hall). Nicholson, Pal. Province Ontario, p. 106, fig. 43.

1898. Fenestella Nicholsoni. Whiteaves, Contr. Canad. Pal., I, p. 378.
Hamilton: Widder and near Arkona, Ontario.

Fenestella nododorsalis Ulrich.

1890. Fenestella compressa var. nododorsalis. Ulrich, Geol. Surv. Illinois, VIII, p. 540, pl. l, 2.
Keokuk: Kings Mountain, Kentucky.

Fenestella nodosa Prout.

1866. Fenestella nodosa. Prout, Trans. St. Louis Acad. Sci., II, p. 410.
Hamilton: Locality not given; (Buffalo, Iowa?).

Fenestella noe Hall and Simpson.

1883. Fenestella sp. Hall, Rep. State Geologist New York for the year 1882, pl. xiii, 19–22.

Fenestella noe Hall and Simpson—Continued.

1887. Fenestella Noe. Hall and Simpson, Pal. New York, VI, p. 47, pl. xiii, 19–22.
Lower Helderberg: Clarksville, New York.

Fenestella normalis Hall. Not recognizable.

1885. Fenestella normalis. Hall, Rep. State Geologist New York for the year 1884, pl. i, 8.
Geological horizon and locality not given.

Fenestella norwoodiana Prout.

1858. Fenestella Norwoodiana. Prout, Trans. St. Louis Acad. Sci., I, p. 233.
Carboniferous: Organ Mountains, New Mexico.

Fenestella obliqua Hall. See Polypora obliqua (Hall and Simpson).

Fenestella (Polypora) obliqua Hall and Simpson. See Polypora obliqua (Hall and Simpson).

Fenestella (Archimedes) Owenana Hall. See Archimedes owenanus (Hall).

Fenestella oxfordensis Ulrich. See Fenestella granulosa Whitfield.

Fenestella papillata Hall. See Polypora paxillata (Hall).

Fenestella parallela Hall (1881). Not recognized.

1883. Fenestella parallela. Hall, Trans. Albany Institute, X, p. 168 (abstract, 1881, p. 26).
Upper Helderberg: New York.

Fenestella parallela Hall (1888). See Loculipora loculata (Hall).

Fenestella parallela Hall.

1885. Fenestella parallela. Hall, Rep. State Geologist New York for the year 1884, pl. i, 7.
1886. Fenestella parallela. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xliv, 8–18.
1887. Fenestella parallela. Hall and Simpson, Pal. New York, VI, p. 107, pl. xliv, 8–18.
Upper Helderberg: Near Buffalo, New York.

Fenestella parvulipora Hall.

1876. Fenestella parvulipora. Hall, Twenty-eighth Ann. Rep. New York State Museum (documentary edition), pl. xii, 1–9; ibid. (Museum edition), 1879, p. 123, pl. xii, 1–9.
1882. Fenestella parvulipora. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 249, pl. xi, 1–9.
Niagara: Waldron, Indiana.

Fenestella patellifera Ulrich. See Fenestella variapora Hall.

Fenestella paxillata Hall. See Polypora paxillata (Hall).

Fenestella (Polypora) paxillata Hall and Simpson. See Polypora paxillata (Hall).

Fenestella peculiaris Hall.

1883. Fenestella peculiaris. Hall, Rep. State Geologist New York for the year 1882, pl. (42) xxxiii, 19–21.
1887. Fenestella peculiaris. Hall and Simpson, Pal. New York, VI, p. 113, pl. xlii, 19–21.
Upper Helderberg: Near Caledonia, New York.

Fenestella perangulata Hall. See Polypora perangulata (Hall).

Fenestella (Polypora) perangulata Hall. See Polypora perangulata (Hall).

Fenestella perelegans Meek.

1872. Fenestella perelegans. Meek, Pal. Eastern Nebraska, p. 153, pl. vii, 3–3*d*. (Proposed under F. Shumardii Meek (not Prout).)

1885. Fenestella perelegans. Waagen and Pichl, Pal. Indica, Ser. XIII, p. 777, pl. lxxxvii, 1–3.

1894. Fenestella shumardi (not of Prout). Keyes, Missouri Geol. Surv., V, p. 24, pl. xxxiv, 2*a*, *b*.

1896. Fenestella shumardi (not of Prout). Smith, Proc. American Phil. Soc., xxxv, p. 237.

Coal Measures: Nebraska City, Nebraska; Poteau Mountain, Indian Territory (Smith).

Fenestella perforata Hall. See Loculipora perforata (Hall).

Fenestella (Loculipora) perforata Hall. See Loculipora perforata (Hall).

Fenestella permarginata Hall. See Semicoscinium permarginatum (Hall).

Fenestella perminuta Ulrich.

1890. Fenestella perminuta. Ulrich, Geol. Surv. Illinois, VIII, p. 551, pl. lii, 4–4*b*.

Coal Measures: Seville, Illinois.

Fenestella (Hemitrypa) pernodosa Hall. See Unitrypa pernodosa (Hall).

Fenestella (Unitrypa) pernodosa Hall. See Unitrypa pernodosa (Hall).

Fenestella perplexa Hall.

1883. Fenestella (Hemitrypa) perplexa. Hall, Trans. Albany Institute, X, p. 175 (abstract, 1881, p. 33).

1887. Fenestella perplexa. Hall and Simpson, Pal. New York, VI, p. 130.

1888. Fenestella perplexa. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. xiv, 5; Forty-first Ann. Rep. New York State Mus., pl. xiv, 5.

1886. Fenestella bigeneris. Ulrich, Contr. American Pal., I, p. 11, pl. ii, 1, 1*a*.

Hamilton: Falls of the Ohio.

Fenestella (Hemitrypa) perplexa Hall. See Fenestella perplexa Hall.

Fenestella pertenuis Hall (1881). See Fenestella proutana Miller.

Fenestella pertenuis Hall.

1883. Fenestella pertenuis. Hall, Trans. Albany Institute, X, p. 62 (abstract, 1879, p. 6).

1882. Fenestella pertenuis. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 251.

Niagara: Waldron, Indiana.

Fenestella perundata Hall. See Reteporidra perundata (Hall).

Fenestella (Polypora) perundata Hall and Simpson. See Reteporidra perundata (Hall).

Fenestella perundulata Hall. See Reteporina perundulata (Hall).

Fenestella philia Hall.

1879. Fenestella Philia. Hall, Thirty-second Ann. Rep. New York State Mus., p. 168 (reprint, 1880, p. 30).

1883. Fenestella Philia. Hall, Rep. State Geologist New York for the year 1882, pl. xx, 9–11.

1887. Fenestella Philia. Hall and Simpson, Pal. New York, VI, p. 50, pl. xx, 9–11.

Lower Helderberg: Clarksville, New York.

Fenestella (Ptiloporina) pinnata Hall and Simpson. See Ptiloporina pinnata Hall and Simpson.

Fenestella planiramosa Hall (Lower Helderberg). See Polypora compressa (Hall).

Fenestella planiramosa Hall.

1884. Fenestella planiramosa. Hall, Thirty-sixth Ann. Rep. New York State Mus., p. 62.

1887. Fenestella planiramosa. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 44, pl. i, 1–13.

1899. Fenestella planiramosa. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 159, fig. 48.

Hamilton: Bellona and Eighteenmile Creek, New York.

Fenestella plumosa Prout. See Hemitrypa plumosa (Prout).

Fenestella popeana Prout.

1858. Fenestella Popeana. Prout, Trans. St. Louis Acad. Sci., I, p. 229; ibid., p. 388.

Permian: Guadalupe Mountains, New Mexico.

Fenestella porosa Hall. See Polypora porosa (Hall.)

Fenestella (Polypora) porosa Hall. See Polypora porosa (Hall).

Fenestella præcursor Hall. See Unitrypa præcursor (Hall).

Fenestella (Unitrypa) præcursor Hall. See Unitrypa præcursor (Hall).

Fenestella prisca? Hall (not Lonsdale nor Goldfuss). See Semicoscinium tenuiceps (Hall).

Fenestella proceritas Hall and Simpson.

1887. Fenestella proceritas. Hall and Simpson, Pal. New York, VI, p. 115, pl. xlvi, 32, 35, 36.

Upper Helderberg: Walpole, Ontario.

Fenestella (Unitrypa) projecta Hall and Simpson. See Unitrypa acaulis (Hall).

Fenestella prolixa Hall.

1883. Fenestella prolixa. Hall, Trans. Albany Institute, X, p. 64 (abstract, 1879, p. 8).

1882. Fenestella prolixa. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 253.

Niagara: Waldron, Indiana.

Fenestella propria Hall. See Polypora propria (Hall).

Fenestella (Polypora) propria Hall and Simpson. See Polypora propria (Hall).

Fenestella proutana Miller.

1883. Fenestella pertenuis. Hall, Trans. Albany Institute, X, p. 171 (abstract, 1881, p. 29).

1886. Fenestella pertenuis. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xlv, 22, 23.

1887. Fenestella pertenuis. Hall and Simpson, Pal. New York, VI, p. 106, pl. xlv, 22, 23.

1883. Fenestella proutana. Miller, American Pal. Foss., ed. 2, p. 291. (Name proposed for F. pertenuis, preoccupied by Hall for a species from the Niagara at Waldron, Indiana).

Hamilton: Falls of the Ohio.

Fenestella pulchella Ulrich.

1886. Fenestella pulchella. Ulrich, Contr. American Pal., I, p. 9, pl. i, 4, 4*a*.

Hamilton: Falls of the Ohio.

Fenestella punctostriata Hall. See Polypora punctostriata (Hall).

Fenestella quadrangula Hall.

1884. Fenestella quadrangula. Hall, Thirty-sixth Ann. Rep. New York State Mus., p. 68.

1887. Fenestella quadrangula. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 47, pl. iii, 7–12.

Hamilton: Darien, New York.

Fenestella quadrangularis Hall. See Polypora quadrangularis (Hall).

Fenestella (Polypora) quadrangularis Hall. See Polypora quadrangularis (Hall).

Fenestella quadrula Hall. See Unitrypa quadrula (Hall).

Fenestella (Lyropora) quincuncialis Hall. See Lyropora quincuncialis (Hall).

Fenestella regalis Ulrich.

1890. Fenestella regalis. Ulrich, Geol. Surv. Illinois, VIII, p. 538, pl. l, 1, 1*a*, pl. liv, 5.

Keokuk: Kings Mountain, Kentucky.

Fenestella regalis-macra Ulrich.

1888. Fenestella regalis var. macra. Ulrich, Bull. Denison Univ., IV, p. 70, pl. xiii, 5, 5*a*.

Waverly: Richfield, Ohio.

Fenestella remota Foerste.

1887. Fenestella limbatus var. remotus. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 84, pl. vii, 11.

1887. Fenestella remota. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 87.

Coal Measures: Flint Ridge, Ohio.

Fenestella (Lyropora) retrorsa Meek and Worthen. See Lyropora retrorsa (Meek and Worthen).

Fenestella rhombifera Hall. See Reteporina rhombifera (Hall).

Fenestella (Reteporina) rhombifera Hall and Simpson. See Reteporina rhombifera (Hall).

Fenestella richfieldensis Ulrich.

1888. Fenestella albida var. richfieldensis. Ulrich, Bull. Denison Univ., IV, p. 66, pl. xiii, 3–3*c*.

Waverly: Richfield, Ohio.

Fenestella rigida Hall. See Polypora rigida (Hall).

Fenestella (Polypora) rigida Hall. See Polypora rigida (Hall).

Fenestella robusta Hall. See Polypora robusta (Hall).

Fenestella (Polypora) robusta Hall. See Polypora robusta (Hall).

Fenestella rudis Ulrich.

1890. Fenestella rudis. Ulrich, Geol. Surv. Illinois, VIII, p. 537, pl. xlix, 3–3*d*.
1894. Fenestella rudis. Keyes, Missouri Geol. Surv., V, p. 23, pl. xxxiv, 5.
Keokuk: Keokuk and Bentonsport, Iowa.
Warsaw: Warsaw and Nauvoo, Illinois.

Fenestella (Polypora) rustica Hall and Simpson. See Polypora rustica (Hall and Simpson).

Fenestella scalaris Hall. See Unitrypa scalaris (Hall).

Fenestella (Unitrypa) scalaris Hall. See Unitrypa scalaris (Hall).

Fenestella sculptilis Ulrich. See Fenestella stellata Hall.

Fenestella semirotunda Hall. See Semicoscinium semirotundum (Hall).

Fenestella (Polypora) separata Hall. See Polypora separata (Hall).

Fenestella serrata Hall.

1883. Fenestella serrata. Hall, Trans. Albany Institute, X, p. 170 (abstract, 1881, p. 28).
1887. Fenestella serrata. Hall and Simpson, Pal. New York, VI, p. 110, pl. xlvii, 11–19.
Hamilton: Falls of the Ohio.

Fenestella serratula Ulrich.

1890. Fenestella serratula. Ulrich, Geol. Surv. Illinois, VIII, p. 544, pl. l, 5–5*c*.
1894. Fenestella serratula. Keyes, Missouri Geol. Surv., V, p. 23.
Keokuk: Nauvoo, Illinois.
Warsaw: Warsaw and Monroe County, Illinois.
St. Louis: Caldwell, Lyon, and Crittenden counties, Kentucky.
Chester: Sloans Valley, Kentucky.

Fenestella sevillensis Ulrich.

1890. Fenestella sevillensis. Ulrich, Geol. Surv. Illinois, VIII, p. 552, pl. lii, 6, 6*a*.
Base of Coal Measures: Seville, Illinois.

Fenestella shumardi Prout.

1858. Fenestella Shumardii. Prout, Trans. St. Louis Acad. Sci., I, p. 232.
Carboniferous: Organ Mountains, New Mexico.

Fenestella Shumardii Meek and other authors (not Prout). See Fenestella perelegans Meek.

Fenestella singularis Hall. See Fenestella singularitas Hall.

Fenestella singularitas Hall.

1883. Fenestella singularis. Hall, Trans. Albany Institute, X, p. 171 (Fenestella singularitas, abstract, 1881, p. 29).
1887. Fenestella singularitas. Hall and Simpson, Pal. New York, VI, p. 114, pl. xlvi, 12–16.
Hamilton: Falls of the Ohio.

Fenestella (Ptiloporina) sinistralis Hall and Simpson. See Ptiloporina sinistralis (Hall and Simpson).

Fenestella sinuosa Hall.

1886. Fenestella sinuosa. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xliv, 5, 6.
1887. Fenestella sinuosa. Hall and Simpson, Pal. New York, VI, p. 116, pl. xliv, 5, 6.
Upper Helderberg: Near Caledonia, New York.

Fenestella spio Hall and Simpson.

1883. Fenestella sp. (?). Hall, Rep. State Geologist New York for the year 1882, pl. xix, 16.
1887. Fenestella Spio. Hall and Simpson, Pal. New York, VI, p. 47, pl. xix, 16.
Lower Helderberg: Clarksville, New York.

Fenestella spissa Hall.

1887. Fenestella spissa. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 59.
Hamilton: West Bloomfield, New York.

Fenestella stellata Hall.

1883. Fenestella stellata. Hall, Trans. Albany Institute, X, p. 170 (abstract, 1881, p. 29).
1886. Fenestella stellata. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xlv, 14, 15.
1887. Fenestella stellata. Hall and Simpson, Pal. New York, VI, p. 109, pl. xlv, 14, 15, pl. xlvii, 20–36.
1897. Fenestella stellata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. ii, 5.
1886. Fenestella sculptilis. Ulrich, Contr. American Pal., I, p. 10, pl. i, 3.
Hamilton: Falls of the Ohio.

Fenestella (Hemitrypa) stipata Hall. See Unitrypa tegulata (Hall).

Fenestella (Unitrypa) stipata Hall. See Unitrypa tegulata (Hall).

Fenestella strata Hall. See Reteporina striata (Hall).

Fenestella (Reteporina) striata Hall. See Reteporina striata (Hall).

Fenestella striatopora Hall. See Polypora striatopora (Hall).

Fenestella (Polypora) striatopora Hall. See Polypora striatopora (Hall).

Fenestella (Polypora) stricta Hall and Simpson. See Polypora? stricta (Hall and Simpson).

Fenestella subflexuosa Ulrich.

1888. Fenestella subflexuosa. Ulrich, Bull. Denison Univ., IV, p. 68, pl. xiii, 6.
Waverly: Cuyahoga Falls, Ohio.

Fenestella submutans Hall. See Polypora submutans (Hall).

Fenestella (Polypora) submutans Hall. See Polypora submutans (Hall).

Fenestella (Lyropora) subquadrans Hall. See Lyropora subquadrans (Hall).

Fenestella subretiformis Prout.

1858. Fenestella subretiformis. Prout, Trans. St. Louis Acad. Sci., I, p. 233.
Carboniferous: Organ Mountains, New Mexico.

Fenestella (Hemitrypa) substriata Hall. See Unitrypa substriata (Hall).

Fenestella subtortilis Hall. See Semicoscinium subtortile (Hall).

Fenestella (Archimedes) Swallovana Hall. See Archimedes swallovanus (Hall).

Fenestella sylvia Hall.

1874. Fenestella Sylvia. Hall, Twenty-sixth Ann. Rep. New York State Mus., p. 96.

1879. Fenestella Sylvia. Hall, Thirty-second Ann. Rep. New York State Mus., p. 167 (reprint, 1880, p. 29).

1883. Fenestella Sylvia. Hall, Rep. State Geologist New York for the year 1882, pl. xx, 4–7.

1887. Fenestella Sylvia. Hall and Simpson, Pal. New York, VI, p. 49, pl. xx, 4–7.

Lower Helderberg: Clarksville, New York.

Fenestella tantulus Hall. See Polypora tantula (Hall).

Fenestella (Hemitrypa) tegulata Hall. See Unitrypa tegulata (Hall).

Fenestella (Unitrypa) tegulata Hall. See Unitrypa tegulata (Hall).

Fenestella tenax Ulrich.

1888. Fenestella tenax. Ulrich, Bull. Denison Univ., IV, p. 71.

1890. Fenestella tenax. Ulrich, Geol. Surv. Illinois, VIII, p. 546, pl. li, 2–2*e*.

1894. Fenestella tenax. Keyes, Missouri Geol. Surv., V, p. 24.

Warsaw: Warsaw, and Monroe County, Illinois.

Chester: Chester and Kaskaskia, Illinois; Sloans Valley, Kentucky.

Waverly: Cuyahoga County, Ohio.

Fenestella tenella Hall.

1886. Fenestella tenella. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xlv, 18, 19.

1887. Fenestella tenella. Hall and Simpson, Pal. New York, VI, p. 105, pl. xlv, 18, 19.

Hamilton: Falls of the Ohio.

Fenestella tenuiceps Hall. See Semicoscinium tenuiceps (Hall).

Fenestella tenuiceps Nicholson (not Hall). See Fenestella arkonensis Whiteaves.

Fenestella tenuis Hall.

1852. Fenestella tenuis. Hall, Pal. New York, II, p. 51, pl. xix, 5*a–c*.

Clinton: Wolcott Furnace, Whiting's Mill, Wayne County, New York.

Fenestella Thyene Hall. See Semicoscinium thyene (Hall).

Fenestella torta Hall. See Semicoscinium tortum (Hall).

Fenestella (Unitrypa) transversa Hall and Simpson. See Unitrypa tegulata (Hall).

Fenestella triserialis Ulrich.

1890. Fenestella triserialis. Ulrich, Geol. Surv. Illinois, VIII, p. 541, pl. l, 4, 4*a*.

Keokuk: Kings Mountain, Kentucky.

Fenestella trituberculata Prout.

1858. Fenestella trituberculata. Prout, Trans. St. Louis Acad. Sci., I, p. 228.

Carboniferous: Organ Mountains, New Mexico.

Fenestella tuberculata Hall and Simpson.

1887. Fenestella tuberculata. Hall and Simpson, Pal. New York, VI, p. 116, pl. xlvi, 25, 26, 33, 34.

Upper Helderberg: Ontario.

Fenestella varia Hall. See Polypora varia (Hall).

Fenestella variabilis Prout.

1858. Fenestella variabilis. Prout, Trans. St. Louis Acad. Sci., I, p. 231.

Carboniferous: Organ Mountains, New Mexico.

Fenestella variapora Hall.

1883. Fenestella variapora. Hall, Trans. Albany Institute, X, p. 170 (abstract, 1881, p. 28).
1886. Fenestella variapora. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xlv, 1–13.
1887. Fenestella variapora. Hall and Simpson, Pal. New York, VI, p. 104, pl. xxxv, 17, pl. xlv, 1–13.
1897. Fenestella variapora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. ii, 18.
1886. Fenestella patellifera. Ulrich, Contr. American Pal., I, p. 8, pl. i, 1, 1*a*.
Hamilton: Falls of the Ohio.

Fenestella vera Ulrich.

1890. Fenestella vera. Ulrich, Geol. Surv. Illinois, VIII, p. 535, pl. xliv, 1, 1*a*, pl. liv, 3.
1892. Fenestella vera. Whiteaves, Contr. Canadian Pal., I, p. 279, pl. xxxvi, 3, 3*a*.
Hamilton: Buffalo, Iowa; Lake Winnipegosis, Canada (Whiteaves).

Fenestella verrucosa Hall.

1883. Fenestella (Polypora) verrucosa. Hall, Rep. State Geologist New York for the year 1882, pl. (42) xxxiii, 11.
1887. Fenestella verrucosa. Hall and Simpson, Pal. New York, VI, p. 110, pl. xlii, 11, pl. xlvi, 22–24.
Hamilton: Falls of the Ohio.

Fenestella (Polypora) verrucosa Hall. See Fenestella verrucosa Hall.

Fenestella wortheni Ulrich.

1890. Fenestella wortheni. Ulrich, Geol. Surv. Illinois, VIII, p. 551, pl. lii, 5, 5*a*.
Base of Coal Measures: Seville, Illinois.

Fenestella (Archimedes) Wortheni Hall. See Archimedes wortheni (Hall).

FENESTRALIA Prout. Genotype: Fenestralia sancti-ludovici Prout.

1858. Fenestralia. Prout, Trans. St. Louis Acad. Sci., I, p. 235.
1882. Fenestralia. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 150.
1885. Fenestralia. Waagen and Pichl, Pal. Indica, Ser. XIII, p. 773.
1885. Fenestralia. Hall, Rep. State Geologist New York for the year 1884, p. 37.
1886. Fenestralia. Ulrich, Contr. American Pal., I, p. 5.
1889. Fenestralia. Miller, North American Geol. Pal., p. 305.
1890. Fenestralia. Ulrich, Geol. Surv. Illinois, VIII, pp. 396, 604.
1895. Fenestralia. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 717, 724; Forty-seventh Ann. Rep. New York State Mus., pp. 911, 918.
1896. Fenestralia. Ulrich, Zittel's Textb. Pal. (Eng. ed.), p. 282.
1897. Fenestralia. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 502, 520.

Fenestralia compacta Ulrich.

1890. Fenestralia sancti-ludovici var. compacta. Ulrich, Geol. Surv. Illinois, VIII, p. 605, pl. lix, 1.
St. Louis: Elizabethtown, Kentucky.

Fenestralia sancti-ludovici Prout.

1858. Fenestralia St. Ludovici. Prout, Trans. St. Louis Acad. Sci., I, p. 235, pl. xv, 1, 1*a*.

Fenestralia sancti-ludovici Prout—Continued.

1890. Fenestralia sancti-ludovici. Ulrich, Geol. Surv. Illinois, VIII, p. 604, pl. lv, 5.
1894. Fenestralia sancti-ludovici. Keyes, Missouri Geol. Surv., V, p. 30.
1895. Fenestralia St. Ludovici. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, fig. 62 (p. 717).
1897. Fenestralia St. Ludovici. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 42, 43 (p. 503).
Warsaw: Barrett's Station, Missouri; Warsaw and Columbia, Illinois.
St. Louis: St. Louis, Missouri; Alton, Illinois.

Fenestralia sancti-ludovici var. compacta Ulrich. See Fenestralia compacta Ulrich.

FENESTRAPORA Hall. Genotype: Fenestrapora biperforata Hall.

1885. Fenestrapora. Hall, Rep. State Geologist New York for the year 1884, p. 36.
1887. Fenestrapora. Hall and Simpson, Pal. New York, VI, p. xxii.
1889. Fenestrapora. Miller, North American Geol. Pal., p. 305.
1890. Fenestrapora. Ulrich, Geol. Surv. Illinois, VIII, pp. 395, 557.
1895. Fenestrapora. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 690, 701, 725; Forty-seventh Ann. Rep. New York State Mus., pp. 884, 895, 919.
1896. Fenestrapora. Ulrich, Zittel's Textb. Pal. (Eng. ed.), p. 282.
1897. Fenestrapora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 506, 520.

Fenestrapora biperforata Hall.

1885. Fenestrapora biperforata. Hall, Rep. State Geologist New York for the year 1884, pl. ii, 17.
1887. Fenestrapora biperforata. Hall and Simpson, Pal. New York, VI, p. 286, pl. lxvi, 34–39.
1897. Fenestrapora biperforata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. iii, 7–12.
Hamilton: Moscow, Livingston County, and other localities in central and western New York.

Fenestrapora infraporosa (Ulrich).

1886. Semicoscinium infraporosa. Ulrich, Contr. American Pal., I, p. 14, pl. i, 6–6*b*.
1889. Fenestrapora infraporosa. Miller, North American Geol. Pal., p. 305.
Hamilton: Falls of the Ohio.

Fenestrapora largior (Hall) Simpson.

1897. Fenestrapora largior Hall. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. iii, 6. (Not described.)
Geological horizon and locality not given.
Obs. Simpson ascribes this species to Hall, but we have been unable to find it described in any of Hall's works.

Fenestrapora occidentalis Ulrich.

1890. Fenestrapora occidentalis. Ulrich, Geol. Surv. Illinois, VIII, p. 558, pl, xliv, 2, 2*a*, pl. liv, 7–7*e*.
Hamilton: Buffalo, Iowa.

Fenestrella D'Orbigny. In error for Fenestella.

Fenestrellina D'Orbigny. Not recognized.

1850. Fenestrellina. D'Orbigny, Prod. de Pal., I, p. 153.
1885. Fenestrellina. Hall, Rep. State Geologist New York for the year 1884 p. 36.
Obs. Hall's Fenestrellina (D'Orbigny's?) = Fenestella.

Fistulicella Simpson. See Pinacotrypa Ulrich.

Fistulicella plana Simpson. See Pinacotrypa plana (Hall).

FISTULIPORA McCoy. Genotype: Fistulipora minor McCoy = Calamopora incrustans Phillips.

1850. Fistulipora. McCoy, Ann. Mag. Nat. Hist., ser. 2, III, p. 131.
1851. Fistulipora. Milne-Edwards and Haime, Pol. Foss. Terr. Pal., p. 219.
1854. Fistulipora. McCoy, Brit. Pal. Foss., p. 11.
1854. Fistulipora. McCoy, Contr. Brit. Pal., p. 99.
1860. Fistulipora. Milne-Edwards, Hist. Nat. des Corall., III, p. 238.
1874. Fistulipora. Nicholson, Pal. Province Ontario, p. 63.
1876. Fistulipora. Dybowski, Verh. Mineral. Gesellschaft St. Petersburg, (2) X, p. 180.
1879. Fistulipora. Nicholson, Pal. Tabulate Corals, p. 292.
1881. Fistulipora. Nicholson, Genus Monticulipora, p. 91.
1882. Fistulipora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 156.
1884. Fistulipora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 43.
1885. Fistulipora. Nicholson and Foord, Ann. Mag. Nat. Hist., ser. 5, XVI, p. 500.
1886. Fistulipora. Waagen and Wentzel, Pal. Indica, Ser. XIII, pp. 909, 922.
1887. Fistulipora. Hall and Simpson, Pal. New York, VI, p. xviii.
1888. Fistulipora (in part). James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 32.
1889. Fistulipora. Miller, North American Geol. Pal., p. 305.
1890. Fistulipora. Ulrich, Geol. Surv. Illinois, VIII, pp. 382, 474.
1896. Fistulipora. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 119.
1896. Fistulipora. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 269; p. 105 (not Ulrich).
1897. Fistulipora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 559.
1882. Didymopora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 156.
1885. Dybowskia. Waagen and Pichl, Pal. Indica, Ser. XIII, p. 717.
1886. Dybowskiella. Waagen and Wentzel, Pal. Indica, Ser. XIII, pp. 910, 916.
1887. Lichenalia (not Hall, 1852). Hall and Simpson, Pal. New York, VI, p. xvi.
1887. Lichenalia (not Hall, 1852). Foerste, Bull. Sci. Lab. Denison Univ., II, p. 168.
1889. Lichenalia (not Hall, 1852). Miller, North American Geol. Pal., p. 311.
1897. Lichenalia (not Hall, 1852). Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 559.
1899. Lichenalia (not Hall, 1852). Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 171.
1897. Fistuliporella. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 560.

Fistulipora acervulosa Rominger.

1866. Fistulipora acervulosa. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 120.
Hamilton: Alpena, Michigan.

Fistulipora alternata (Hall).

1883. Lichenalia alternata. Hall, Trans. Albany Institute, X, p. 150 (abstract, 1881, p. 8).

1886. Lichenalia alternata. Hall, Rep. State Geologist New York for the year 1885, pl. xxxi, 39–41.

1887. Lichenalia alternata. Hall and Simpson, Pal. New York, VI, p. 80, pl. xxxi, 39–41.

Hamilton: Falls of the Ohio.

Fistulipora asteria (Prout).

1859. Coscinium asterias. Prout, Trans. St. Louis Acad. Sci., I, p. 574.

1866. Coscinium asterias. Prout, Geol. Surv. Illinois, II, p. 416, pl. xxii, 7, *7a*.

Keokuk: Near Warsaw, Illinois.

Fistulipora astrica Ulrich.

1890. Fistulipora astrica. Ulrich, Geol. Surv. Illinois, VIII, p. 477, fig. *8a* (p. 320), pl. xlvii, 5–*5b*, pl. xlviii, 3.

1889. Fistulipora astricta (in error for astrica), Ulrich (in press). Miller, North American Geol. Pal., fig. 476 (p. 305).

1896. Fistulipora astrica. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 442 (p. 269).

Hamilton: Buffalo, Iowa.

Fistulipora astricta (Ulrich) Miller. See Fistulipora astrica Ulrich.

Fistulipora ? bullata (Hall and Simpson).

1887. Lichenalia bullata. Hall and Simpson, Pal. New York, VI, p. 205, pl. lvii, 12, 13.

Hamilton: Near Le Roy, New York.

Obs. This form may be a Pinacotrypa.

Fistulipora Canadensis Billings. Coral belonging to the genus Favosites.

Fistulipora carbonaria Ulrich.

1884. Fistulipora carbonaria. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 45, pl. iii, 1, *1a*.

1894. Fistulipora carbonaria. Keyes, Missouri Geol. Surv., V, p. 16.

Upper Coal Measures: Kansas City, Missouri; Manhattan, Kansas.

Fistulipora? clausa Ulrich. See Meekopora clausa (Ulrich).

Fistulipora colliculata (Hall).

1883. Lichenalia colliculata. Hall, Trans. Albany Institute, X, p. 184 (abstract, 1881, p. 184).

1884. Lichenalia colliculata. Hall, Rep. State Geologist New York for the year 1883, p. 36.

1887. Lichenalia colliculata. Hall and Simpson, Pal. New York, VI, p. 200.

1897. Lichenalia colliculata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxii, 8, 9.

Hamilton: York, New York.

Fistulipora collina Ulrich. See Cyclotrypa collina (Ulrich).

Fistulipora communis Ulrich. See Cyclotrypa communis (Ulrich).

Fistulipora compressa Rominger.

1866. Fistulipora compressa. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 123.

1894. Fistulipora compressa. Keyes, Missouri Geol. Surv., V, p. 16.

Keokuk: Lagrange, Missouri.

Fistulipora confertipora Hall and Simpson. See Lioclema confertiporum (Hall).

Fistulipora ? confusa (Hall and Simpson).

1887. Lichenalia confusa. Hall and Simpson, Pal. New York, VI, p. 204.

Hamilton: Near Le Roy, New York.

Fistulipora ? constricta (Hall).

1883. Lichenalia constricta. Hall, Trans. Albany Institute, X, p. 183 (abstract, 1881, p. 183).

1884. Lichenalia constricta. Hall, Rep. State Geologist New York for the year 1883, p. 36.

1887. Fistulipora constricta. Hall and Simpson, Pal. New York, VI, p. 227.

1888. Fistulipora constricta. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. xv, 11, 12; Forty-first Ann. Rep. New York State Mus., pl. xv, 11, 12.

1897. Fistuliporella constricta. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxii, 5–7.

Hamilton: Near Le Roy and York, New York.

Obs.—This species is the type of Simpson's Fistuliporella. This genus, in the present state of our knowledge, is a synonym of Fistulipora. However, when this species is better known, the genus Fistuliporella may stand.

Fistulipora conulata (Hall).

1883. Lichenalia conulata. Hall, Trans. Albany Institute, X, p. 151 (abstract, 1881, p. 9).

1886. Lichenalia conulata. Hall, Rep. State Geologist New York for the year 1885, pl. xxxi, 10–14.

1887. Lichenalia conulata. Hall and Simpson, Pal. New York, VI, p. 81, pl. xxxi, 10–14.

Hamilton: Falls of the Ohio.

Fistulipora cornuta (Hall and Simpson).

1887. Lichenalia cornuta. Hall and Simpson, Pal. New York, VI, p. 203.

1888. Lichenalia cornuta. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. xv, 6; Forty-first Ann. Rep. New York State Mus., pl. xv, 6.

Hamilton: Near York and near Le Roy, New York.

Fistulipora (? Dichotrypa) corrugata Ulrich.

1890. Fistulipora (? Dichotrypa) corrugata. Ulrich, Geol. Surv. Illinois, VIII, p. 480, pl. xlvii, 8, 8*a*, pl. xlviii, 6–6*b*.

Hamilton: Thunder Bay, Michigan.

Fistulipora ? crassa (Hall).

1879. Trematopora crassa. Hall, Thirty-second Ann. Rep. New York State Mus., p. 152 (reprint, 1880, p. 14).

1883. Trematopora crassa. Hall, Rep. State Geologist New York for the year 1882, pl. xi, 21, 22.

1887. Lichenalia crassa. Hall and Simpson, Pal. New York, VI, p. 30, pl. xi, 21, 22.

Lower Helderberg: Schoharie, New York.

Fistulipora crassa Rominger (not Hall nor Lonsdale). See Fistulipora romingeri Nicholson and Foord.

Fistulipora confertipora Hall and Simpson. See Lioclema confertiporum (Hall).

Fistulipora cultellata (Hall).

1884. Lichenalia cultellata. Hall, Rep. State Geologist New York for the year 1883, p. 35.

1887. Lichenalia cultellata. Hall and Simpson, Pal. New York, VI, p. 202, pl. lxiv, 1, 2.

Hamilton: Fall Brook and York, New York.

Fistulipora decipiens Hall and Simpson. See Lioclema decipiens (Hall).

Fistulipora densa Hall and Simpson. See Lioclema densum (Hall).

Fistulipora digitata Hall and Simpson. See Lioclema digitatum (Hall).

Fistulipora distans (Hall).

1879. Lichenalia distans. Hall, Thirty-second Ann. Rep. New York State Mus., p. 157 (reprint, 1880, p. 19).

1883. Lichenalia distans. Hall, Rep. State Geologist New York for the year 1882, pl. xv, 8, 9.

1887. Lichenalia distans. Hall and Simpson, Pal. New York, VI, p. 32, pl. xv, 8, 9.

Lower Helderberg: Schoharie, New York.

Fistulipora distensa (Hall).

1887. Lichenaiia distans. Hall and Simpson, Pal. New York, VI, p. 197.

1888. Lichenalia distensa. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. xv, 5; Forty-first Ann. Rep. New York State Mus., pl. xv, 5.

Hamilton: Western New York.

Fistulipora elegans Rominger. See Pinacotrypa elegans (Rominger).

Fistulipora eriensis Rominger.

1866. Fistulipora Eriensis. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 121.

1885. Fistulipora eriensis. Nicholson and Foord, Ann. Mag. Nat. Hist., ser. 5, XVI, p. 511, pl. xvii, 4, 4*a*.

Hamilton: Hamburg, New York.

Fistulipora excellens Ulrich.

1884. Fistulipora excelens. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 46, pl. iii, 3–3*b*.

Chester: Sloans Valley and Litchfield, Kentucky.

Fistulipora flabellata Ulrich. See Chiloporella nicholsoni (James).

Fistulipora flabellum Rominger. See Dichotrypa flabellum (Rominger).

Fistulipora foliacea (Hall).

1883. Lichenalia foliacea. Hall, Trans. Albany Institute, X, p. 183 (abstract, 1881, p. 183).

1884. Lichenalia foliacea. Hall, Rep. State Geologist New York for the year 1883, p. 35.

1887. Ceramopora? (Lichenalia) foliacea. Hall and Simpson, Pal. New York, VI, p. 235, pl. lviii, 6, 7.

Hamilton: West Bloomfield, New York.

Fistulipora foordi Ulrich.

1890. Fistulipora foordi. Ulrich, Geol. Surv. Illinois, VIII, p. 479, fig. 5*f* (p. 315), pl. xlvii, 7, 7*a*, pl. xlviii, 4, 4*a*.

1889. Fistulipora foordi. (Ulrich in press), Miller, North American Geol. Pal., fig. 477 (p. 305).

Hamilton: Rockford, Iowa.

Fistulipora geometrica (Hall).

1886. Lichenalia geometrica. Hall, Rep. State Geologist New York for the year 1885, pl. xxxii, 21–23.

1887. Lichenalia geometrica. Hall and Simpson, Pal. New York, VI, p. 79, pl. xxxii, 21–23.

1897. Pileotrypa geometrica. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxiii, 15.

Hamilton: Falls of the Ohio.

Obs. This form may be the young of Fistulipora normalis (Hall).

Fistulipora granifera (Hall).

1883. Lichenalia granifera. Hall, Trans. Albany Institute, X, p. 153 (abstract, 1881, p. 11).

1886. Lichenalia (Pileotrypa) granifera. Hall, Rep. State Geologist New York for the year 1885, pl. xxx, 28–31.

1887. Lichenalia (Pileotrypa) granifera. Hall and Simpson, Pal. New York, VI, p. 84, pl. xxx, 28–31.

1897. Pileotrypa granifera. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxiii, 13.

Hamilton: Falls of the Ohio.

Fistulipora halli Rominger.

1866. Fistulipora Halli. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 119.

1876. Lichenalia concentrica var. parvula. Hall, Twenty-eighth Ann. Rep. New York State Mus. (documentary edition), pl. vii, 1, 2; ibid. (Museum edition, 1879), p. 117, pl. vii, 1, 2.

1882. Lichenalia concentrica var. parvula. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 241, pl. vi. 1, 2.

Niagara: Waldron, Indiana.

Fistulipora ?? helios Rominger.

1866. Fistulipora helios. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 120.

Upper Helderberg: From the drift of Michigan.

Obs. Compare with Botryllopora socialis Nicholson, with which this form is perhaps identical.

Fistulipora hemispherica (Roemer).

1860. Thecostegites hemisphericus. Roemer, Sil. Fauna West. Tennessee, p. 25, pl. ii, 3, *3a*.

1889. Thecostegites hemisphericus. Miller, North American Geol. Pal., fig. 228 (p. 207).

Niagara: Perry and Wayne counties, Tennessee.

Fistulipora ? hemispherica (Hall).

1883. Callopora hemispherica. Hall, Trans. Albany Institute, X, p. 183 (abstract, 1881, p. 183).

1884. Callopora hemispherica. Hall, Rep. State Geologist New York for the year 1883, p. 17.

1887. Fistulipora hemispherica. Hall and Simpson, Pal. New York, VI, p. 226, pl. lvii, 8–11.

Hamilton: York, New York.

Obs. This species will probably be found to belong to another genus (Pinacotrypa?), and hence will not need renaming.

Fistulipora huronensis (Nicholson).

1875. Ceramopora Huronensis. Nicholson, Geol. Mag., new ser., II, p. 37, pl. ii, 5, *5a*.

Fistulipora huronensis (Nicholson)—Continued.

1875. Ceramopora Huronensis. Nicholson, Pal. Province Ontario, p. 78, pl. ii, 5, 5*a*.
1891. Ceramopora Huronensis. Whiteaves, Contr. Canadian Pal., I, p. 214.
Hamilton: Arkona, Ontario; Hay River, Canada (Whiteaves).
Obs. Lichenalia (Ceramopora) clypeiformis Hall may be a synonym of this species.

Fistulipora incrassata (Nicholson).

1874. Callopora incrassata. Nicholson, Geol. Mag., new ser., I, p. 13, pl. ii, 1.
1874. Callopora incrassata. Nicholson, Pal. Province Ontario, p. 61, fig. 19*a*–*d*.
1879. Fistulipora incrassata. Nicholson, Pal. Tabulate Corals, p. 308, fig. 40, pl. xv, 3–3*b*.
Hamilton: Widder and Arkona, Ontario.

Fistulipora interaspera Hall and Simpson.

1887. Fistulipora interaspera. Hall and Simpson, Pal. New York, VI, p. 218.
1897. Lichenalia interaspera. Simpson, Fourteenth Ann. Rep. State Geologist New York, for the year 1894, pl. xxii, 10.
Hamilton: Lake Canandaigua, New York.

Fistulipora intercellata Hall and Simpson. See Lioclema intercellatum (Hall).

Fistulipora involvens Hall and Simpson. See Lioclema involvens (Hall and Simpson).

Fistulipora labiosa Winchell.

1866. Fistulipora labiosa. Winchell, Rep. Lower Penin. Michigan, p. 88.
Hamilton: Petoskey, Michigan.

Fistulipora ? lamellata (Hall).

1883. Thallostigma lamellata. Hall, Trans. Albany Institute, X, p. 155 (abstract, 1881, p. 13).
1886. Fistulipora lamellata. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxx, 21–23.
1887. Fistulipora lamellata. Hall and Simpson, Pal. New York, VI, p. 87, pl. xxx, 21–23.
Upper Helderberg: Onondaga Valley, New York.

Fistulipora ? laxata Ulrich. See Bythotrypa laxata (Ulrich).

Fistulipora lens Whitfield. See Calloporella ? lens (Whitfield).

Fistulipora longimacula (Hall).

1883. Thallostigma longimacula. Hall, Trans. Albany Institute, X, p. 185 (abstract, 1881, p. 185).
1884. Thallostigma longimacula. Hall, Rep. State Geologist New York for the year 1883, p. 23.
1887. Fistulipora longimacula. Hall and Simpson, Pal. New York, VI, p. 209.
Hamilton: York, New York.
Obs. This may be the same as Fistulipora sulcata Rominger.

Fistulipora lunata Rominger. See Buskopora lunata (Rominger).

Fistulipora maculosa (Hall).

1874. Trematopora maculosa. Hall, Twenty-sixth Ann. Rep. New York State Mus., p. 106.
1879. Callopora maculosa. Hall, Thirty-second Ann. Rep. New York State Mus., p. 156 (reprint, 1880, p. 18).

Fistulipora maculosa (Hall)—Continued.

1883. Callopora maculosa. Hall, Rep. State Geologist New York for the year 1882, pl. xiv, 1–8.

1887. Lichenalia maculosa. Hall and Simpson, Pal. New York, VI, p. 30, pl. xiv, 1–8.

1874. Trematopora ponderosa. Hall, Twenty-sixth Ann. Rep. New York State Mus., p. 106.

Lower Helderberg: Catskill Creek and Clarksville, New York.

Fistulipora micropora Hall and Simpson. See Lioclema microporum (Hall).

Fistulipora minuta Rominger. See Lioclema minutum (Rominger).

Fistulipora monticulata Ulrich.

1890. Fistulipora monticulata. Ulrich, Geol. Surv. Illinois, VIII, p. 477, pl. xlvii, 3–3*b*, pl. xlviii, 2, 2*a*.

Hamilton: Buffalo, Iowa.

Fistulipora multaculeata Hall and Simpson. See Lioclema multaculeatum (Hall).

Fistulipora ? multipora James. See Chiloporella nicholsoni (James).

Fistulipora neglecta Rominger.

1866. Fistulipora neglecta. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 119.

1876. Lichenalia concentrica. Hall, Twenty-eighth Ann. Rep. New York State Mus. (documentary edition), pl. v, 9–16, pl. vi, 1, 2, 4, 7–10, pl. vii, 3–11; ibid. (Museum edition, 1879), p. 116, pl. v, 9–16, pl. vi, 1, 2, 4, 7–10, pl. vii, 3–11.

1881. Lichenalia concentrica. Quenstedt, Roehren- und Sternkorallen, p. 95, pl. cxlvi, 71, 72.

1882. Lichenalia concentrica. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 240, pl. iv, 9–16, pl. v, 1, 2, 4, 7–10, pl. vi, 3–11.

1884. Lichenalia concentrica. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, pl. iii, 5.

1887. Lichenalia concentrica. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 168, pl. xvii, 10.

Niagara: Waldron, Indiana.

Fistulipora neglecta-maculata (Hall).

1876. Lichenalia concentrica var. maculata. Hall, Twenty-eighth Ann. Rep. New York State Mus. (documentary edition), pl. vi, 3, 5, 6; ibid. (Museum edition, 1879), p. 117, pl. vi, 3, 5, 6.

1882. Lichenalia concentrica var. maculata. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 241, pl. v, 3, 5, 6.

Niagara: Waldron, Indiana.

Fistulipora nodulifera Meek.

1872. Fistulipora nodulifera. Meek, Pal. Eastern Nebraska, p. 143, pl. v, 5*a–d*.

1894. Fistulipora nodulifera. Keyes, Missouri Geol. Surv., V, pl. xxxiv, 3.

1896. Fistulipora nodulifera. Smith, Proc. American Phil. Soc., XXXV, p. 235.

Coal Measures: Nebraska City and other localities in Nebraska; Poteau Mountain, Indian Territory (Smith).

Fistulipora normalis Ulrich.

1886. Fistulipora normalis. Ulrich, Contr. American Pal., I, p. 20, pl. ii, 4–4*b*.

Hamilton: Falls of the Ohio.

Obs. See also Fistulipora geometrica (Hall) and Fistulipora substellata (Hall).

Fistulipora occidens Hall and Whitfield. See Lioclema occidens (Hall and Whitfield).

Fistulipora operculata Simpson. See Pinacotrypa operculata (Hall and Simpson).

Fistulipora ovata (Hall).

1886. Lichenalia ovata. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxxii, 1–5.
1887. Lichenalia ovata. Hall and Simpson, Pal. New York, VI, p. 80, pl. xxxii, 1–5.
1897. Lichenalia ovata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxiii, 2.
Hamilton: Falls of the Ohio.
Obs. See also Fistulipora substellata (Hall).

Fistulipora oweni James. See Cœloclema oweni (James).

Fistulipora parasitica Hall and Simpson. See Lioclema parasiticum (Hall).

Fistulipora peculiaris Rominger. See Actinotrypa peculiaris (Rominger).

Fistulipora ? permarginata (Hall).

1883. Lichenalia permarginata. Hall, Trans. Albany Institute, X, p. 151 (abstract, 1881, p. 10).
1883. Lichenalia permarginata. Hall, Rep. State Geologist New York for the year 1882, pl. (26) xxiv, 20.
1887. Lichenalia permarginata. Hall and Simpson, Pal. New York, VI, p. 82, pl. xxvi, 20.
Upper Helderberg: Onondaga Valley, New York.

Fistulipora plana Hall and Simpson. See Pinacotrypa plana (Hall).

Fistulipora ponderosa Hall and Simpson. See Lioclema ponderosum (Hall).

Fistulipora prolifica Ulrich.

1884. Fistulipora prolifica. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 45, pl. iii, 2, *2a*.
St. Louis: Colesburg, Kentucky.

Fistulipora proporoides Nicholson. See Pinacotrypa elegans (Rominger).

Fistulipora ? pustulosa (Hall and Simpson).

1887. Lichenalia pustulosa. Hall and Simpson, Pal. New York, VI, p. 206.
1897. Fistulipora pustulosa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxii, 12.
Hamilton: York, New York.
Obs. This form may be a Pinacotrypa.

Fistulipora ramosa (Hall and Simpson).

1887. Lichenalia ramosa. Hall and Simpson, Pal. New York, VI, p. 199.
1898. Lichenalia ramosa. Whiteaves, Contr. Canadian Pal., I, p. 381.
Hamilton: West Williams, Ontario.

Fistulipora romingeri Nicholson and Foord.

1866. Fistulipora crassa. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 121.

Fistulipora romingeri Nicholson and Foord—Continued.

1885. Fistulipora Romingeri. Nicholson and Foord, Ann. Mag. Nat. Hist., ser. 5, XVI, p. 506. (Proposed for F. crassa Rominger, the name crassa having been previously used by Lonsdale for a species of this genus.)

1898. Fistulipora Romingeri. Whiteaves, Contr. Canadian Pal., I, p. 380.

Hamilton: Widder, Ontario; Buffalo, Iowa.

Fistulipora rugosa Whitfield. See Batostoma? rugosum (Whitfield).

Fistulipora saffordi Winchell.

1866. Fistulipora Saffordi. Winchell, Rep. Lower Penin. Michigan, p. 88.

Hamilton: Petoskey, Michigan.

Fistulipora ? scrobiculata (Hall).

1883. Thallostigma scrobiculata. Hall, Trans. Albany Institute, X, p. 185 (abstract, 1881, p. 185).

1884. Thallostigma scrobiculata. Hall, Rep. State Geologist New York for the year 1883, p. 20.

1887. Fistulipora scrobiculata. Hall and Simpson, Pal. New York, VI, p. 212, pl. lviii, 17, 18.

1899. Fistuliporina scrobiculata. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 168, fig. 61.

Hamilton: Eighteen-Mile Creek, Erie County and Bellona, Yates County, New York.

Obs. This form may be a Pinacotrypa.

Fistulipora segregata Hall and Simpson. See Lioclema segregatum (Hall).

Fistulipora serialis (Hall and Simpson).

1879. Lichenalia torta (in part). Hall, Thirty-second Ann. Rep. New York State Mus., p. 157 (reprint, 1880, p. 19).

1883. Lichenalia torta. Hall, Rep. State Geologist New York for the year 1882, pl. xv, 6.

1883. Lichenalia tortuosa. Hall, Rep. State Geologist New York for the year 1882, pl. xiii, 17, 18.

1887. Lichenalia serialis. Hall and Simpson, Pal. New York, VI, p. 32, pl. xiii, 17, 18, pl. xv, 6.

Lower Helderberg: Clarksville, New York.

Fistulipora serrulata Hall and Simpson. See Pinacotrypa serrulata (Hall).

Fistulipora siluriana James. See Chiloporella nicholsoni (James).

Fistulipora solidissima Whitfield. See Lioclemella solidissima (Whitfield).

Fistulipora spergenensis Rominger.

1866. Fistulipora Spergenensis. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 122.

Warsaw: Spergen Hill, Indiana.

Fistulipora spheroidea Hall and Simpson. See Lioclema spheroideum (Hall).

Fistulipora spinulifera Rominger.

1866. Fistulipora spinulifera. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 121.

1890. Fistulipora spinulifera. Ulrich, Geol. Surv. Illinois, VIII, p. 480, pl. xlvi, 3–3*d*.

Hamilton: Alpena, Michigan.

Fistulipora stellifera Rominger. See Meekopora stellifera (Rominger).

Fistulipora subcava (Hall).

1883. Lichenalia subcava. Hall, Trans. Albany Institute, X, p. 150 (abstract, 1881, p. 8).
1883. Lichenalia subcava. Hall, Rep. State Geologist New York for the year 1882, pl. (26) xxiv, 23–25.
1887. Lichenalia subcava. Hall and Simpson, Pal. New York, VI, p. 81, pl. xxvi, 23–25.
Hamilton: Falls of the Ohio.

Fistulipora substellata (Hall).

1883. Lichenalia substellata. Hall, Trans. Albany Institute, X, p. 149 (abstract, 1881, p. 7).
1883. Lichenalia substellata. Hall, Rep. State Geologist New York for the year 1882, pl. (26) xxiv, 26.
1886. Lichenalia substellata. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxx, 1–11.
1887. Lichenalia substellata. Hall and Simpson, Pal. New York, VI, p. 78, pl. xxvi, 26, pl. xxx, 1–11.
1897. Lichenalia substellata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxiii, 1.
Hamilton: Falls of the Ohio.
Obs. Fistulipora normalis Ulrich and Fistulipora ovata (Hall) may be synonyms of this species.

Fistulipora ? subtilis Hall and Simpson. See Lioclema subtile (Hall).

Fistulipora subtrigona (Hall and Simpson).

1887. Lichenalia subtrigona. Hall and Simpson, Pal. New York, VI, p. 196.
1888. Lichenalia subtrigona. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. xv, 3, 4; Forty-first Ann. Rep. New York State Mus., pl. xv, 3, 4.
1897. Lichenalia subtrigona. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxiii, 4.
1898. Lichenalia subtrigona. Whiteaves, Contr. Canadian Pal., I, p. 381.
Hamilton: West Williams, Ontario.

Fistulipora sulcata Rominger.

1866. Fistulipora sulcatus. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 120.
Hamilton: Near Alpena, Michigan.
Obs. See also Fistulipora longimacula (Hall).

Fistulipora torta (Hall).

1879. Lichenalia torta. Hall, Thirty-second Ann. Rep. New York State Mus., p. 157 (reprint, 1880, p. 19).
1883. Lichenalia torta. Hall, Rep. State Geologist New York for the year 1882, pl. xv, 1–5, 7.
1887. Lichenalia torta. Hall and Simpson, Pal. New York, VI, p. 31, pl. xv, 1–5, 7.
Lower Helderberg: Clarksville and Schoharie, New York.

Fistulipora ? triangularis (Hall).

1883. Thallostigma triangularis. Hall, Trans. Albany Institute, X, p. 187 (abstract, 1881, p. 187).
1884. Thallostigma triangularis. Hall, Rep. State Geologist New York for the year 1883, p. 32.

Fistulipora ? triangularis (Hall)—Continued.

1887. Fistulipora triangularis. Hall and Simpson, Pal. New York, VI, p. 222.
Hamilton: Western New York.

Fistulipora ? trifaria Hall and Simpson.

1887. Fistulipora trifaria. Hall and Simpson, Pal. New York, VI, p. 222.
Hamilton: Fall brook, New York.

Fistulipora trifolia Rominger. See Phractopora trifolia (Rominger).

Fistulipora ? triloba Hall and Simpson.

1887. Fistulipora triloba. Hall and Simpson, Pal. New York, VI, p. 29.
1888. Fistulipora triloba. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. xv, 1, 2; Forty-first Ann. Rep. New York State Mus., pl. xv, 1, 2.
1897. Fistulipora triloba. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxii, 11.
Lower Helderberg: Near Schoharie, New York.

Fistulipora ? tuberculata (Prout).

1859. Coscinium tuberculatum. Prout, Trans. St. Louis Acad. Sci., I, p. 573.
1866. Coscinium tuberculatum. Prout, Geol. Surv. Illinois, II, p. 415, pl. xxii, 6.
Keokuk: Near Warsaw, Illinois.

Fistulipora ? umbilicata (Hall).

1883. Thallostigma umbilicata. Hall, Trans. Albany Institute, X, p. 185 (abstract, 1881, p. 185).
1884. Thallostigma umbilicata. Hall, Rep. State Geologist New York for the year 1883, p. 22.
1887. Fistulipora umbilicata. Hall and Simpson, Pal. New York, VI, p. 213.
Hamilton: York, New York.
Obs. This may prove to be a species of Pinacotrypa.

Fistulipora ? unilinea Hall and Simpson.

1887. Fistulipora unilinea. Hall and Simpson, Pal. New York, VI, p. 217, pl. lvii, 1, 2, 5.
Hamilton: York, New York.
Obs. This may prove to be a species of Pinacotrypa.

Fistulipora utriculus Rominger.

1866. Fistulipora utriculus. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 121.
1885. Fistulipora utriculus. Nicholson and Foord, Ann. Mag. Nat. Hist., ser. 5, XVI, p. 508, pl. xvi, 1–1*e*, pl. xvii, 1, 1*a*.
1898. Fistulipora utriculus. Whiteaves, Contr. Canadian Pal., I, p. 380.
Hamilton: Widder and Arkona, Ontario.

Fistulipora variapora Hall. See Pinacotrypa variapora (Hall).

Fistulipora vesiculata (Hall and Simpson).

1887. Lichenalia vesiculata. Hall and Simpson, Pal. New York, VI, p. 198, pl. lvii, 14–19, pl. lix, 1, 14.
1897. Lichenalia vesiculata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxiii, 3.
Hamilton: Canandaigua Lake, York and near Le Roy, New York.

Fistuliporella Simpson. See Fistulipora McCoy, and observation on Fistulipora ? constricta (Hall).

Fistuliporella constricta Simpson. See Fistulipora ? constricta (Hall).

Fistuliporidra Simpson. See Favicella Hall and Simpson.

Fistuliporidra tessellata Simpson. See Favicella tessellata (Hall and Simpson).

Fistuliporina Simpson. See Pinacotrypa Ulrich.

Fistuliporina confertipora Simpson. See Lioclema confertiporum (Hall).

Fistuliporina digitata Simpson. See Lioclema digitatum (Hall).

Fistuliporina micropora Simpson. See Lioclema microporum (Hall).

Fistuliporina minuta Grabau. See Lioclema minutum (Rominger).

Fistuliporina multiculeata Simpson. See Lioclema multaculeatum (Hall).

Fistuliporina ponderosa Simpson. See Lioclema ponderosum (Hall).

Fistuliporina scrobiculata Grabau. See Fistulipora ? scrobiculata (Hall).

Fistuliporina segregata Grabau. See Lioclema segregatum (Hall).

Fistuliporina serrulata Simpson. See Pinacotrypa serrulata (Hall).

Fistuliporina stellata Simpson. See Pinacotrypa stellata (Hall).

Fistuliporina variopora Simpson. See Pinacotrypa variapora (Hall).

Flabelliporella Simpson. See Polypora McCoy.

Flabelliporina Simpson. See Fenestella Lonsdale.

Flustra Linnæus. Not Paleozoic.

Flustra carbaseoides Eaton. Not recognized.

1832. Flustra carbaseoides. Eaton, Geol. Textb., ed. 2, p. 44.
Devonian: Glenns Falls.

Flustra spatulata Prout. See Worthenopora spatulata (Prout).

Flustra tuberculata Prout. See Stenopora tuberculata (Prout).

Geinitzella Waagen and Wentzel. See Batostomella Ulrich.

Glauconome of authors. See Pinnatopora Vine.

Glauconome carinata Hall. See Pinnatopora carinata (Hall).

Glauconome nereidis White. See Pinnatopora nereidis (White).

Glauconome nodata Hall. See Pinnatopora nodata (Hall).

Glauconome sinuosa Hall. See Pinnatopora sinuosa (Hall).

Glauconome tenuistriata Hall. See Pinnatopora tenuistriata (Hall).

Glauconome trilineata Meek. See Pinnatopora trilineata (Meek).

Glauconome whitii Foerste. See Pinnatopora whitii (Foerste).

GLOSSOTRYPA Hall. Genotype: Lichenalia paliformis Hall.

1886. Glossotrypa. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, expl. pl. xxxi, 15–18.
1887. Glossotrypa. Hall and Simpson, Pal. New York, VI, p. xvii.
1889. Glossotrypa. Miller, North American Geol. Pal., p. 307.
1897. Glossotrypa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 562.

Obs. If the lunarium is frequently repeated (interrupted) as a diaphragm, as described, the genus is distinct. This character is so extraordinary that we think it is due to faulty observation or peculiar preservation. If so, the name is a synonym for Buskopora Ulrich.

Glossotrypa paliformis (Hall).

1883. Lichenalia paliformis. Hall, Trans. Albany Institute, X, p. 152 (abstract, 1881, p. 11).
1886. Lichenalia (Glossotrypa) paliformis. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxxi, 15–18.
1887. Lichenalia (Glossotrypa) paliformis. Hall and Simpson, Pal. New York, VI, p. 85, pl. xxxi, 15–18.
1897. Glossotrypa paliformis. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxiv, 8–10.
Hamilton: Falls of the Ohio.

GLYPTOPORA Ulrich. Genotype: Coscinium plumosum Prout.

1884. Glyptopora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 39.
1890. Glyptopora. Ulrich, Geol. Surv. Illinois, VIII, pp. 387, 511.
1896. Glyptopora. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 280.

Glyptopora elegans (Prout).

1860. Coscinium elegans. Prout, Trans. St. Louis Acad. Sci., I, p. 572.
1866. Coscinium elegans. Prout, Geol. Surv. Illinois, II, p. 413, pl. xxii, 2, *2a*.
1884. Glyptopora elegans. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 40.
1890. Glyptopora elegans. Geol. Surv. Illinois, VIII, p. 518, pl. lxxviii, 10–10*e*.
1894. Glyptopora elegans. Keyes, Missouri Geol. Surv., V, p. 21.
Warsaw: Warsaw and Nauvoo, Illinois; Curryville, Missouri.

Glyptopora keyserlingi (Prout).

1858. Coscinium Keyserlingi. Prout, Trans. St. Louis Acad. Sci., I, p. 269, pl. xv, 4, 4*a*.
1884. Glyptopora keyserlingi. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 40.
1890. Glyptopora keyserlingi. Ulrich, Geol. Surv. Illinois, VIII, p. 517, pl. lxxviii, 4–4*b*.
1894. Glyptopora keyserlingi. Keyes, Missouri Geol. Surv., V, p. 22.
1860. Coscinium wortheni. Prout, Trans. St. Louis Acad. Sci., I, p. 571.
1866. Coscinium wortheni. Prout, Geol. Surv. Illinois, II, p. 412, pl. xxii, 1, 1*a*.
Keokuk: Warsaw, Illinois.

Glyptopora megastoma Ulrich. See Phractopora megastoma (Ulrich).

Glyptopora michelinia (Prout).

1860. Coscinium Michelinia. Prout, Trans. St. Louis Acad. Sci., I, p. 573.
1866. Coscinium Michelinia. Prout, Geol. Surv. Illinois, II, p. 414, pl. xxii, 4, 4*a*.
1884. Glyptopora michelinia. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 40.
1890. Glyptopora michelinia. Ulrich, Geol. Surv. Illinois, VIII, p. 515, pl. lxxviii, 8–8*b*.
1894. Glyptopora michelinia. Keyes, Missouri Geol. Surv., V, p. 22.
1897. Phractopora sagenella (not of Prout). Simpson, Fourteenth Ann. Rep. State Geologist, New York, for the year 1894, fig. 95 (p. 539).
Warsaw: Warsaw, Illinois; Barretts Station, Missouri.

Glyptopora pinnata Ulrich. See Phractopora pinnata (Ulrich).

Glyptopora plumosa (Prout).

1860. Coscinium plumosum. Prout, Trans. St. Louis Acad. Sci., I, p. 572.
1866. Coscinium plumosum. Prout, Geol. Surv. Illinois, II, p. 414, pl. xxii, 3, 3*b*.
1884. Glyptopora plumosa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 40.

Glyptopora plumosa (Prout)—Continued.

1890. Glyptopora plumosa. Ulrich, Geol. Surv. Illinois, VIII, p. 512, pl. lxxviii, 3–3*c*.

1894. Glyptopora plumosa. Keyes, Missouri Geol. Surv., V, p. 20, pl. xxxiii, 5.

Warsaw: Warsaw, Illinois; Barretts Station, Missouri.

Glyptopora punctipora Ulrich.

1890. Glyptopora punctipora. Ulrich, Geol. Surv. Illinois, VIII, p. 519, pl. lxxviii, 9, 9*a*.

Chester: Monroe County, Illinois; Livingston and Meade counties, Kentucky.

Glyptopora sagenella (Prout).

1860. Coscinium saganella. Prout, Trans. St. Louis Acad. Sci., I, p. 573.

1866. Coscinium saganella. Prout, Geol. Surv. Illinois, II, p. 415, pl. xxii, 5, 5*a*.

1884. Glyptopora sagenella. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 40.

1890. Glyptopora sagenella. Ulrich, Geol. Surv. Illinois, VIII, p. 513, pl. lxxviii, 6, 6*a*.

1894. Glyptopora sagenella. Keyes, Missouri Geol. Surv., V, p. 21.

Keokuk: Bentonsport, Iowa.

Warsaw: Warsaw, Illinois.

Glyptopora sagenella-caliculosa Ulrich.

1866. Coscinium plumosum (in part). Prout, Geol. Surv. Illinois, II, p. 415, pl. xxii, 3*a*.

1890. Glyptopora sagenella var. caliculosa. Ulrich, Geol. Surv. Illinois, VIII, p. 514.

Warsaw: Warsaw, Illinois.

Glyptopora sagenella-lata Ulrich.

1890. Glyptopora sagenella var. lata. Ulrich, Geol. Surv. Illinois, VIII, p. 515, pl. lxxviii, 7.

1897. Phractopora michelini. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 96 (p. 539).

Warsaw: Warsaw, Illinois.

Glyptotrypa Miller, Simpson. Written in error for Glyptopora Ulrich.

GONIOCLADIA Etheridge, Jun. Genotype: Carinella cellulifera Etheridge, Jun.

1873. Carinella. Etheridge, Jun., Geol. Mag., X, p. 433.

1876. Goniocladia. Etheridge, Jun., Geol. Mag., Dec. 2, III, p. 522.

1885. Goniocladia. Waagen and Pichl, Pal. Indica, Ser. XIII, pp. 775, 804.

1886. Goniocladia. Ulrich, Contr. American Pal., I, p. 5.

Obs.—No American species referable to this genus has been published.

GONIOTRYPA Ulrich. Genotype: Goniotrypa bilateralis Ulrich.

1889. Goniotrypa. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 40.

1889. Goniotrypa. Miller, North American Geol. Pal., p. 307.

1890. Goniotrypa. Ulrich, Geol. Surv. Illinois, VIII, p. 389.

1897. Goniotrypa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 545.

Goniotrypa bilateralis Ulrich.

1889. Goniotrypa bilateralis. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 41, figs. 1–3, pl. ix, 1.

1889. Goniotrypa bilateralis. Miller, North American Geol. Pal., fig. 481 (p. 307).

Goniotrypa bilateralis Ulrich—Continued.

1895. Goniotrypa bilateralis. Whiteaves, Pal. Foss, III, p. 118.
Cincinnati (Richmond): Stony Mountain, Manitoba.

Gorgonia Linnæus. Not Paleozoic.

Gorgonia anticorum. Castelnau. Not recognized.

1843. Gorgonia anticorum. Castelnau, Syst. Sil., p. 50, pl. xxiv, 1.
Lake Huron.

Gorgonia? aspera Hall. See Phylloporina aspera (Hall).

Gorgonia infundibuliformis Eaton. Not recognized.

1832. Gorgonia infundibuliformis. Eaton, Geol. Text-book, ed. 2, p. 43.

Gorgonia perantiqua Hall. Not recognizable.

1847. Gorgonia perantiqua. Hall, Pal. New York, I, p. 76, pl. xxvi, 5*a*, *b*.
1850. Enallopora perantiqua. D'Orbigny, Prodr. de Pal., I, p. 22.
1889. Enallopora perantiqua. Miller, North American Geol. Pal., p. 301.
Trenton: Middleville, Herkimer County, New York.

Gorgonia retiformis Hall. Not a bryozoan. See Pal. New York, II, 1852, p. 174.

1843. Gorgonia ? retiformis. Hall, Geol. Rep. Fourth District New York, p. 115, fig. 1.

Gorgonia siluriana Castelnau. Not recognized.

1843. Gorgonia siluriana. Castelnau, Syst. Sil., p. 50.

GRAPTODICTYA Ulrich. Genotype: Ptilodictya perelegans Ulrich.

1882. Graptodictya. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, pp. 151, 165.
1889. Graptodictya. Miller, North American Geol. Pal., p. 307.
1890. Graptodictya. Ulrich, Geol. Surv. Illinois, VIII, p. 393.
1897. Graptodictya. Simpson, Fourteenth Ann. Rep. New York State Geologist for the year 1894, p. 541.

Graptodictya nitida Ulrich. See Graptodictya perelegans (Ulrich).

Graptodictya perelegans (Ulrich).

1878. Ptilodictya perelegans. Ulrich, Jour. Cincinnati Soc. Nat. Hist., I, p. 94, pl. iv, 16, 16*a*.
1882. Graptodictya perelegans. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 165.
1882. Graptodictya nitida. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 166, pl. vii, 8, 8*a*.
Cincinnati (Richmond): Clarksville and other localities in Ohio.

HEDERELLA Hall. Genotype: Alecto? Canadensis Nicholson.

1883. Hederella. Hall, Trans. Albany Institute, X, p. 194 (abstract, 1881, p. 194).
1887. Hederella. Hall and Simpson, Pal. New York, VI, p. xxvi.
1889. Hederella. Miller, North American Geol. Pal., p. 308.
1897. Hederella. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 599.
1899. Hederella. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 178.
1885. Nicholsonia. Davis, Kentucky Foss. Corals, part 2. (Name proposed but not defined.)

Hederella adnata (Davis).

1885. Nicholsonia adnata. Davis, Kentucky Foss. Corals, part. 2, pl. lxxviii, 19. (Not described.)
Hamilton: Falls of the Ohio.
Obs.—Compare this form with Hederella filiformis (Billings).

Hederella alternata (Hall and Whitfield).

1873. Stomatopora ? alternata. Hall and Whitfield, Twenty-third Ann. Rep. New York State Museum, p. 235, pl. x, 7, 8.

Hamilton: Rockford and Hackberry, Iowa.

Obs.—Whiteaves (Contr. Canadian Pal., I, p. 210) makes this a synonym for Hederella Canadensis (Nicholson).

Hederella canadensis (Nicholson).

1874. Alecto ? Canadensis. Nicholson, Canadian Naturalist, ser. 2, VII, p. 146.

1874. Aulopora ? Canadensis. Nicholson, Pal. Province Ontario, p. 124, fig. 57*a–e*.

1883. Hederella Canadensis. Hall, Trans. Albany Institute, X, p, 194 (abstract, 1881, p. 194).

1884. Hederella Canadensis. Hall, Rep. State Geologist New York for the year 1883, p. 53.

1885. Nicholsonia canadensis. Davis, Kentucky Foss. Corals, part 2, pl. li, 6, pl. lxxiii, 10, 11, pl. lxxviii, 18, pl. lxxx, 15.

1887. Hederella Canadensis. Hall and Simpson, Pal. New York, VI, p. 277, pl. lxv, 1–8, 14, ? 16.

1889. Hederella canadensis. Miller, North American Geol. Pal., fig. 483 (p. 308).

1891. Hederella Canadensis. Whiteaves, Contr. Canadian Pal., I, p. 210, pl. xxviii, 8, 8*a*.

1897. Hederella canadensis. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxv, 12, 13.

1899. Hederella canadensis. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 178, fig. 77.

Upper Helderberg: Port Colborne, Ontario.

Hamilton: Near Arkona, Ontario; Livingston and Erie counties, and Eighteenmile Creek, New York, Falls of the Ohio; Hay River and Athabasca River, Canada.

Hederella cirrhosa Hall.

1883. Hederella cirrhosa. Hall, Trans. Albany Institute, X, p. 194 (abstract, 1881, p. 194).

1884. Hederella cirrhosa. Hall, Rep. State Geologist New York for the year 1883, p. 53.

1887. Hederella cirrhosa. Hall and Simpson, Pal. New York, VI, p. 277, pl. lxv, 12, 13.

1897. Hederella cirrhosa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxv, 10, 11.

1898. Hederella cirrhosa. Whiteaves, Contr. Canad. Pal., I, Part V, p. 381.

Hamilton: York and Erie counties, New York; Falls of the Ohio.

Hederella conferta (Hall).

1883. Ptilionella conferta. Hall, Trans. Albany Institute, X, p. 195 (abstract, 1881, p. 195).

1884. Ptilionella conferta. Hall, Rep. State Geologist New York for the year 1883, p. 56.

1887. Hederella conferta. Hall and Simpson, Pal. New York, VI, p. 279.

1891. Hederella conferta. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 56; Forty-fourth Ann. Rep. New York State Museum, p. 86.

Hamilton: Darien Center, New York.

Hederella filiformis (Billings).

1859. Aulopora filiformis. Billings, Canadian Jour., new ser., IV, p. 119.

1874. Aulopora filiformis. Nicholson, Pal. Province Ontario, p. 42, fig. 11*a*, *b*.

Hederella filiformis (Billings)—Continued.

1883. Hederella filiformis. Hall, Trans. Albany Institute, X, p. 194 (abstract, 1881, p. 194).
1884. Hederella filiformis. Hall, Rep. State Geologist New York for the year 1883, p. 54.
1887. Hederella filiformis. Hall and Simpson, Pal. New York, VI, p. 278, pl. lxv, 9–11.
1897. Hederella filiformis. Whiteaves, Contr. Canadian Pal., I, p. 211, pl. xxix, 1.
1899. Hederella filiformis. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 179, fig. 77A.
Hamilton: Arkona, Ontario; Livingston, Ontario, and Erie counties, New York.

Hederella magna Hall.

1883. Hederella magna. Hall, Trans. Albany Institute, X, p. 195 (abstract, 1881, p. 195).
1884. Hederella magna. Hall, Rep. State Geologist New York for the year 1883, p. 55.
1887. Hederella magna. Hall and Simpson, Pal. New York, VI, p. 280, pl. lxv, 15.
1898. Hederella magna. Whiteaves, Contr. Canadian Pal., I, Part V, p. 382.
Hamilton: York, and Erie County, New York.

HELICOPORA Claypole. Genotype: Helicopora latispiralis Claypole.

1881. Helicopora. Claypole, Proc. American Assoc. Adv. Sci., XXX, p. 191.
1883. Helicopora. Claypole, Quar. Jour. Geol. Soc. London, XXXIX, p. 32.
1885. Helicopora. Waagen and Pichl, Pal. Indica, Ser. XIII, p. 774.
1886. Helicopora. Ulrich, Contr. American Pal., I, p. 5.
1889. Helicopora. Miller, North American Geol. Pal., p. 308.
1890. Helicopora. Ulrich, Geol. Surv. Illinois, VIII, p. 396.
1895. Helicopora. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 722, 726; Forty-seventh Ann. Rep. New York State Museum, pp. 916, 920.
1896. Helicopora. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 282.
1897. Helicopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 517, 522.

Helicopora archimediformis Claypole. See Archimedes laxus (Hall).

Helicopora latispiralis Claypole.

1881. Helicopora latispiralis. Claypole, Proc. American Assoc. Adv. Sci., XXX, p. 191.
1883. Helicopora latispiralis. Claypole, Quar. Jour. Geol. Soc. London, XXXIX, p. 32, pl. iv, 1, 1*a*.
1897. Helicopora latispiralis. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 70, 1 (p. 518).
Niagara: Cedarville, Greene County, Ohio.

Helicopora ulrichi Claypole.

1883. Helicopora ulrichi. Claypole, Quar. Jour. Geol. Soc. London, XXXIX, p. 33, pl. iv, 2.
1897. Helicopora ulrichi. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 70, 2, 2*a* (p. 518).
Hamilton: Falls of the Ohio.

HELIOTRYPA Ulrich. Genotype: Heliotrypa bifolia Ulrich.

1883. Heliotrypa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 277.
1889. Heliotrypa. Miller, North American Geol. Pal., p. 308.
1890. Heliotrypa. Ulrich, Geol. Surv. Illinois, VIII, p. 404.

Heliotrypa bifolia Ulrich.

1883. Heliotrypa bifolia. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 278, pl. xiii, 6–6*c*.
1889. Heliotrypa bifolia. Miller, North American Geol. Pal., fig. 484 (p. 308).
1890. Heliotrypa bifolia. Ulrich, Geol. Surv., Illinois, VIII, fig. 3*f* (p. 308).
Chester: Sloans Valley, Kentucky.

Hellipora antheloidea Rominger. In error for Stellipora antheloidea. See Constellaria constellata (Van Cleve) Dana.

HELOPORA Hall. Genotype: Helopora fragilis Hall.

1852. Helopora. Hall, Pal. New York, II, p. 44.
1866. Helopora. Billings, Catal. Sil. Foss. Anticosti, p. 36.
1888. Helopora. Ulrich, American Geologist, I, p. 231.
1889. Helopora. Miller, North American Geol. Pal., p. 308.
1890. Helopora. Ulrich, Geol. Surv. Illinois, VIII, pp. 401, 642.
1890. Helopora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 191.
1893. Helopora. Ulrich, Geol. Minnesota, III, p. 189.
1896. Helopora. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 280.
1897. Helopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 548.

Helopora alternata Ulrich.

1890. Helopora alternata. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 192, fig. 16*f*.
1893. Helopora alternata. Ulrich, Geol. Minnesota, III, p. 192, pl. iii, 9.
Trenton (Black River): Minneapolis, Minnesota.

Helopora approximata James. See Bythopora parvula (James).

Helopora armata Billings.

1866. Helopora armata. Billings, Catal. Sil. Foss. Anticosti, p. 38.
Anticosti: Anticosti Island.

Helopora bellula Billings.

1866. Helopora bellula. Billings, Catal. Sil. Foss. Anticosti, p. 38.
Anticosti: Anticosti Island.
Obs. Compare Helopora fragilis Hall, of which this species may be a synonym.

Helopora ?? circe Billings.

1866. Helopora Circe. Billings, Catal. Sil. Foss. Anticosti, p. 39.
Anticosti: Anticosti Island.

Helopora ?? concava Billings.

1866. Helopora concava. Billings, Catal. Sil. Foss. Anticosti, p. 37.
Anticosti: Anticosti Island.
Obs. This form may be only a condition of Nematopora formosa (Billings).

Helopora dendrina James. See Bythopora dendrina (James).

Helopora divaricata Ulrich.

1886. Helopora divaricata. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Surv. Minnesota, p. 59.
1893. Helopora divaricata. Ulrich, Geol. Minnesota, III, p. 191, pl. iii, 1–3.
Trenton (Stones River): Minneapolis, Minnesota.

Helopora elegans Ulrich.

1893. Helopora elegans. Ulrich, Geol. Minnesota, III, p. 194, fig. 11.
Cincinnati (Richmond): Blanchester, Oxford, and other localities in Ohio; Richmond and Versailles, Indiana.

Helopora formosa Billings. See Nematopora formosa (Billings).

Helopora fragilis Hall.

1852. Helopora fragilis. Hall, Pal. New York, II, p. 44, pl. xviii, 3*a–f*.
1874. Helopora fragilis. Nicholson and Hinde, Canadian Jour., new ser., XIV, p. 141.
1875. Helopora fragilis. Nicholson, Pal. Province Ontario, p. 44, fig. 19, 3, 3*a*.
1888. Helopora fragilis. Ulrich, American Geologist, I, p. 233, fig. 2*a–e*.
1889. Helopora fragilis. Miller, North American Geol. Pal., figs. 485*a–e*, 486 (p. 308).
1890. Helopora fragilis. Ulrich, Geol. Sur. Illinois, VIII, p. 642, figs. 18*a–e* (p. 643), pl. xxix, 5*a*.
Clinton: Rochester, New York.
Niagara: Lockport, New York; Flamborough Head, Ontario.
Obs. See also Helopora bellula Billings.

Helopora fragilis-acadiensis Hall. Not defined.

1860. Helopora fragilis var. acadiensis. Hall, Canadian Nat. Geol., V, p. 159.
Silurian: Nova Scotia.

Helopora harrisi James.

1883. Helopora harrisi. James, Paleontologist, No. 7, p. 58, pl. ii, 2–2*b*.
1889. Helopora harrisi. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 45.
1893. Helopora harrisi. Ulrich, Geol. Minnesota, III, p. 195, pl. iii, 11*b*, *c*, 12.
1895. Helopora Harrisii. Whiteaves, Pal. Foss., III, Part II, p. 117.
1897. Helopora Harrisi. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 113–115 (p. 548).
Cincinnati (Richmond): Waynesville, Blanchester, and other localities in Ohio; Stony Mountain, Manitoba.

Helopora imbricata Ulrich.

1890. Helopora imbricata. Ulrich, Geol. Sur. Illinois, VIII, p. 644, pl. xxix, 5.
Cincinnati (Richmond): Wilmington, Illinois.
Obs. This form may be the tertiary segments of Arthroclema angulare Ulrich.

Helopora ?? irregularis Billings.

1866. Helopora irregularis. Billings, Catal. Sil. Foss. Anticosti, p. 39.
Anticosti: Anticosti Island.

Helopora lineata Billings. See Nematopora lineata (Billings).

Helopora lineopora Billings. See Nematopora ? lineopora (Billings).

Helopora ?? meeki James.

1878. Helopora meeki. James, Paleontologist, No. 1, p. 3.
Cincinnati: Warren County, Ohio.
Obs. This is in all probability the same as Dicranopora internodia (Miller and Dyer), but the description given is too meager to determine the question.

Helopora mucronata Ulrich.

1890. Helopora mucronata. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 192, fig. 16*e*.
1893. Helopora mucronata. Ulrich, Geol. Minnesota, III, p. 193, pl. iii, 10.
Trenton: Cannon Falls and St. Paul, Minnesota.

Helopora nodosa Billings.

1866. Helopora nodosa. Billings, Catal. Sil. Foss. Anticosti, p. 38.
Anticosti: Anticosti Island.

Helopora parvula James. See Bythopora parvula (James).

Helopora quadrata Ulrich.

1893. Helopora quadrata. Ulrich, Geol. Minnesota, III, p. 193, fig. 10.
Trenton: Cannon Falls, Minnesota.

Helopora spiniformis (Ulrich).

1882. Arthroclema spiniformis. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 161, pl. vi, 10, 10*a*.
1893. Helopora spiniformis. Ulrich, Geol. Minnesota, III, pl. iii, 4, 5, 6.
1896. Helopora spiniformis. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 469 (p. 283).
Trenton (Stones River): Lebanon and Lavergne, Tennessee; Dixon, Illinois.

Helopora striatopora Billings. See Nematopora striatopora (Billings).

Helopora strigosa Billings. See Nematopora strigosa (Billings).

Helopora tenuis James. See Arthrostylus tenuis (James).

Helopora ?? varipora Billings.

1866. Helopora varipora. Billings, Catal. Sil. Foss. Anticosti, p. 40.
Anticosti: Anticosti Island.

HEMIPHRAGMA Ulrich. Genotype: Batostoma irrasum Ulrich.

1890. Batostoma (in part). Ulrich, Geol. Sur. Illinois, VIII, p. 379.
1893. Hemiphragma. Ulrich, Geol. Minnesota, III, p. 299.
1896. Hemiphragma. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 275.
1897. Hemiphragma. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 592.

Hemiphragma imperfectum (Ulrich).

1890. Batostoma imperfectum. Ulrich, Geol. Sur. Illinois, VIII, p. 460, pl. xxxv, 3–3*d*.
1893. Hemiphragma imperfectum. Ulrich, Geol. Minnesota, III, p. 301.
1894. Monticulipora imperfectum. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 196.
Cincinnati (Richmond): Wilmington, Illinois.

Hemiphragma irrasum (Ulrich).

1886. Batostoma irrasa. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 94.
1893. Hemiphragma irrasum. Ulrich, Geol. Minnesota, III, p. 299, pl. xxiv, 5–19.
1896. Hemiphragma irrasum. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 460 (p. 275).
1897. Hemiphragma irrasum. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 190–193 (p. 592).
Trenton (Stones River, Black River, and Trenton): Minneapolis, St. Paul, Cannon Falls, and Preston, Minnesota; Decorah, Iowa.

Hemiphragma ottawense (Foord).

1883. Batostoma Ottawaense. Foord, Contr. Micro-Pal. Cambro-Sil., p. 18, pl. ii, 1–1*f*.
1893. Hemiphragma ottawaense. Ulrich, Geol. Minnesota, III, p. 300, pl. xxiv, 1–4.
Trenton (Black River and Trenton): Ottawa and Paquettes Rapids, Ottawa River, Canada; Kenyon, Berne, and Mantorville, Minnesota.

Hemiphragma tenuimurale Ulrich.

1893. Hemiphragma tenuimurale. Ulrich, Geol. Minnesota, III, p. 301, pl. xxiv, 20–23.
Trenton: Goodhue County, Minnesota.

Hemiphragma whitfieldi (James).

1881. Monticulipora (Chætetes) whitfieldi. James, Paleontologist, No. 5, p. 34.
1888. Monticulipora whitfieldi. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 178.
1894. Monticulipora whitfieldi. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 200.
Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

HEMITRYPA Phillips. Genotype: Hemitrypa oculata Phillips.

1841. Hemitrypa. Phillips, Pal. Foss., p. 27.
1844. Hemitrypa. McCoy, Synop. Carb. Foss. Ireland, p. 204.
1874. Hemitrypa. Hall, Twenty-sixth Ann. Rep. New York State Mus., p. 97.
1885. Hemitrypa. Hall, Rep. State Geologist New York for the year 1884, p. 36.
1886. Hemitrypa. Ulrich, Contr. American Pal., I, p. 4.
1887. Hemitrypa. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 152.
1887. Hemitrypa. Hall and Simpson, Pal. New York, VI, p. xxiii.
1889. Hemitrypa. Miller, North American Geol. Pal., p. 309.
1890. Hemitrypa. Ulrich, Geol. Sur. Illinois, VIII, pp. 396, 559.
1893. Hemitrypa. Cole, Sci. Proc. Roy. Dublin Soc. (n. s.), VIII, p. 132.
1894. Hemitrypa. Počta, Syst. Sil. Bohême, VIII, t. 1, p. 92.
1895. Hemitrypa. Whidborne, Devon. Fauna England (Pal. Soc. Publ.), II, pt. 4, p. 177.
1895. Hemitrypa. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 710, 726; Forty-seventh Ann. Rep. New York State Mus., pp. 904, 920.
1896. Hemitrypa. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 282.
1897. Hemitrypa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 507, 520.

Hemitrypa aspera Ulrich.

1890. Hemitrypa aspera. Ulrich, Geol. Sur. Illinois, VIII, p. 563, pl. lvii, 4–4*f*, 3*a*.
1894. Hemitrypa aspera. Keyes, Missouri Geol. Sur., V, p. 25.
Keokuk: Keokuk and Bentonsport, Iowa; Nauvoo, Illinois.

Hemitrypa biordo Hall.

1885. Hemitrypa biordo. Hall, Rep. State Geologist New York for the year 1884, p. 36, pl. ii, 11.
1887. Fenestella (Hemitrypa) biordo. Hall and Simpson, Pal. New York, VI, p. 149.
1889. Hemitrypa biordo. Miller, North American Geol. Pal., fig. 487 (p. 309).
Upper Helderberg: Walpole, Ontario.

Hemitrypa biserialis (Hall).

1879. Fenestella (Hemitrypa) biserialis. Hall, Thirty-second Ann. Rep. New York State Mus., p. 174 (reprint, 1880, p. 36).
1883. Fenestella (Hemitrypa) biserialis (in part). Hall, Rep. State Geologist New York for the year 1882, pl. xxii, 13–18.
1887. Fenestella (Hemitrypa) biserialis. Hall and Simpson, Pal. New York, VI, p. 57, pl. xxii, 13, 16–18.
Lower Helderberg: Clarksville, New York.

Hemitrypa biserialis-exilis (Hall and Simpson).

1883. Fenestella (Hemitrypa) biserialis (in part). Hall, Rep. State Geologist New York for the year 1882, pl. xxii, 13–18.
1887. Fenestella (Hemitrypa) biserialis var. exilis. Hall and Simpson, Pal. New York, VI, p. 57, pl. xxii, 14, 15.
Lower Helderberg: Clarksville, New York.

Hemitrypa columellata (Hall and Simpson).

1887. Fenestella (Hemitrypa) columellata. Hall and Simpson, Pal. New York, VI, p. 146.

1897. Hemitrypa columellata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 51–53 (p. 508), pl. v, 3–11.

Upper Helderberg: Walpole, Ontario.

Hemitrypa cribrosa (Hall).

1883. Fenestella (Hemitrypa) cribrosa. Hall, Trans. Albany Institute, X, p. 177 (abstract, 1881, p. 35).

1887. Fenestella (Hemitrypa) cribrosa. Hall and Simpson, Pal. New York, VI, p. 145.

1897. Hemitrypa cribrosa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. v, 1, 2.

Hamilton: Falls of the Ohio.

Hemitrypa dubia Hall. See Loculipora ambigua (Hall).

Hemitrypa favosa (Hall).

1883. Fenestella (Hemitrypa) favosa. Hall, Trans. Albany Institute, X, p. 177 (abstract, 1881, p. 35).

1887. Fenestella (Hemitrypa) favosa. Hall and Simpson, Pal. New York, VI, p. 148.

Upper Helderberg: Walpole, Ontario.

Hemitrypa hemitrypa (Prout) Keyes. See Hemitrypa proutana Ulrich.

Hemitrypa nodosa Ulrich.

1890. Hemitrypa nodosa. Ulrich Geol. Sur. Illinois, VIII, p. 562, pl. lvii, 3.

1894. Hemitrypa nodosa. Keyes, Missouri Geol. Sur., V, p. 25.

Keokuk: Nauvoo, Illinois; Keokuk and Bentonsport, Iowa.

Hemitrypa pateriformis Ulrich.

1890. Hemitrypa pateriformis. Ulrich, Geol. Sur. Illinois, VIII, p. 564, pl. lvii, 7–7*c*.

1894. Hemitrypa pateriformis. Keyes, Missouri Geol. Sur., V, p. 26.

Keokuk: Keokuk, Iowa.

Hemitrypa perstriata Ulrich.

1890. Hemitrypa perstriata. Ulrich, Geol. Sur. Illinois, VIII, p. 564, pl. lvii, 6, 6*a*.

1894. Hemitrypa perstriata. Keyes, Missouri Geol. Sur., V, p. 25.

Keokuk: Keokuk and Bentonsport, Iowa.

Hemitrypa plumosa (Prout).

1858. Fenestella plumosa. Prout, Trans. St. Louis Acad. Sci., I, p. 236. pl. xv, 2, 2*a*.

1889. Hemitrypa plumosa. Miller, North American Geol. Pal., p. 309.

Warsaw: Warsaw, Illinois; Barretts Station, Missouri.

Hemitrypa prima Hall. See Unitrypa nervia (Hall).

Hemitrypa proutana Ulrich.

1859. Fenestella hemitrypa. Prout, Trans. St. Louis Acad. Sci., I, p. 444, pl. xvii, 4, 4*a*.

1890. Hemitrypa proutana. Ulrich, Geol. Sur. Illinois, VIII, p. 560, pl. lvii, 1–1*c*.

1894. Hemitrypa hemitrypa. Keyes, Missouri Geol. Sur., V, p. 25.

Keokuk: Warsaw, Illinois; Keokuk, Iowa.

Warsaw: Warsaw and Monroe County, Illinois; Barretts Station, Missouri.

St. Louis: Caldwell County, Kentucky.

Hemitrypa proutana-nodulosa Ulrich.

1890. Hemitrypa proutana var. nodulosa. Ulrich, Geol. Sur. Illinois, VIII, p. 562, pl. lvii, 2–2*c*.

Keokuk: Bentonsport and Keokuk, Iowa; Nauvoo, Illinois.

Hemitrypa proutana-vermifera Ulrich.

1890. Hemitrypa proutana var. vermifera. Ulrich, Geol. Sur. Illinois, VIII, p. 561, pl. lvii, 5, 5*a*.

Warsaw: Warsaw, Illinois.

Hemitrypa tenera Ulrich.

1890. Hemitrypa tenera. Ulrich, Geol. Sur. Illinois, VIII, p. 559, pl. xliv, 7, 7*a*, pl. liv, 10–10*c*.

Hamilton: Davenport and Buffalo, Iowa; Rock Island, Illinois.

Hemitrypa ulrichi Foerste.

1887. Hemitrypa ulrichi. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 152; ibid., III, 1888, pl. xv, 2.

1895. Hemitrypa ulrichi. Foerste, Geol. Sur. Ohio, VII, p. 599, pl. xxviii, 2.

Clinton: Near New Carlisle, Ohio.

HERNODIA Hall. Genotype: Hernodia humifusa Hall.

1883. Hernodia Hall, Trans. Albany Institute, X, p. 196 (abstract, 1881, p. 196).

1884. Hernodia. Hall, Rep. State Geologist New York for the year 1883, p. 58.

1887. Hernodia. Hall and Simpson, Pal. New York, VI, p. xxvi.

1889. Hernodia. Miller, North American Geol. Pal., p. 309.

1897. Hernodia. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 596.

Hernodia humifusa Hall.

1883. Hernodia humifusa. Hall, Trans. Albany Institute, X, p. 196 (abstract, 1881, p. 196).

1884. Hernodia humifusa. Hall, Rep. State Geologist New York for the year 1883, p. 58.

1887. Hernodia humifusa. Hall and Simpson, Pal. New York, VI, p. 281, pl. lxv, 20, 21.

1897. Hernodia humifusa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxv, 1, 2.

Hamilton: Cazenovia, Madison County, New York; Falls of the Ohio.

Heterodictya Nicholson. See Ptilodictya Lonsdale.

Heterodictya gigantea Nicholson. See Ptilodictya gigantea (Nicholson).

Heterodictya pavonia Ulrich. See Escharopora pavonia (D'Orbigny).

HETEROTRYPA Nicholson. Genotype: Monticulipora frondosa D'Orbigny (not Nicholson).

1879. Heterotrypa (in part). Nicholson, Pal. Tabulate Corals, p. 291.

1881. Heterotrypa. Nicholson, Genus Monticulipora, pp. 101, 103.

1882. Heterotrypa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 155; ibid., VI, 1883, p. 83.

1883. Heterotrypa. Foord, Contr. Micro-Pal. Cambro-Sil., p. 20.

1890. Heterotrypa. Ulrich, Geol. Sur. Illinois, VIII, pp. 371, 413.

1893. Heterotrypa. Ulrich, Geol. Minnesota, III, p. 267.

1896. Heterotrypa (in part). Zittel's Textb. Pal. (Engl. ed.), p. 104.

1896. Heterotrypa. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 273.

1897. Heterotrypa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 578.

Heterotrypa affinis (Ulrich).

1890. Amplexopora affinis. Ulrich, Geol. Sur. Illinois, VIII, p. 450, pl. xxxvi, 2, 2*a*.

Cincinnati (Richmond): Wilmington, Illinois; Richmond, Indiana.

Heterotrypa ? barrandei (Nicholson).

1874. Chætetes Barrandi. Nicholson, Geol. Mag., new ser., I, p. 57, pl. iv. 7*c*.
1874. Chætetes Barrandi. Nicholson, Pal. Province Ontario, p. 60, fig. 17*c*.
1881. Monticulipora (Heterotrypa) Barrandi. Nicholson, Genus Monticulipora, p. 139, pl. i, 2–2*d*.
1882. Amplexopora barrandi. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 255.

Hamilton: Widder, Ontario.

Heterotrypa frondosa (D'Orbigny).

1850. Monticulipora frondosa. D'Orbigny, Prodr. de Pal., I, p. 25.
1851. Chætetes frondosus. Milne-Edwards and Haime, Pol. Foss. Terr. Pal., p. 267, pl. xix, 5, 5*a*.
1854. Monticulipora frondosa. Milne-Edwards and Haime, Brit. Foss. Corals, p. 265.
1860. Monticulipora frondosa. Milne-Edwards, Hist. Nat. des Corall., III, p. 276.
1882. Monticulipora frondosa. White, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 380, pl. xlviii, 2, 3.
1882. Heterotrypa frondosa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 235.
1881. Chætetes frondosus. Quenstedt, Roehren- und Sternkorallen, p. 73, pl. cxlvi, 8 (not 3–5).
1881. Chætetes frondosus limatus. Quenstedt, Roehren- und Sternkorallen, p. 74, pl. cxlvi, 9.
1874. Chætetes mammulatus (not of D'Orbigny). Nicholson, Quar. Jour. Geol. Soc. London, XXX, p. 508, pl. xxx, 2-2*b*.
1875. Chætetes mammulatus (not of D'Orbigny). Nicholson, Pal. Ohio, II, p. 207.
1879. Monticulipora (Heterotrypa) mammulata (not of D'Orbigny). Nicholson, Pal. Tabulate Corals, p. 294, pl. xiii, 1–1*b*.
1881. Monticulipora (Heterotrypa) mammulata (not of D'Orbigny). Nicholson, Genus Monticulipora, p. 104, pl. vi, 1–1*g*.
1888. Monticulipora mammulata (not of D'Orbigny). James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 16.
1895. Monticulipora mammulata (not of D'Orbigny). J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 69.

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

Heterotrypa inflecta Ulrich.

1890. Heterotrypa inflecta. Ulrich, Geol. Sur. Illinois, VIII, p. 414, pl. xxxvii, 2–2*d*.
1895. Monticulipora inflecta. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 77.

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

Heterotrypa ? moniliformis (Nicholson).

1874. Chætetes moniliformis. Nicholson, Geol. Mag., new ser., I, p. 57, pl. iv, 7*a*, 7*b*.
1874. Chætetes moniliformis. Nicholson, Pal. Province Ontario, p. 60, fig. 17*a*, *b*.
1881. Monticulipora (Heterotrypa) moniliformis. Nicholson, Genus Monticulipora, p. 137, pl. i, 1–1*c*.

Heterotrypa ? moniliformis (Nicholson)—Continued.

1882. Amplexopora moniliformis. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 255.

Hamilton: Widder, Ontario.

Heterotrypa paupera (Ulrich).

1883. Dekayia paupera. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 153, pl. vi, 10, 10*a*.

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

Heterotrypa prolifica Ulrich. See Heterotrypa subramosa-prolifica Ulrich.

Heterotrypa singularis Ulrich.

1890. Heterotrypa singularis. Ulrich, Geol. Sur. Illinois, VIII, p. 415, pl. xxxvii, 3–3*e*.

1893. Heterotrypa singularis. Ulrich, Geol. Minnesota, III, p. 268.

1895. Monticulipora singularis. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 77.

1897. Heterotrypa singularis. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 147 (p. 579).

Cincinnati (Richmond): Wilmington, Illinois; Iron Ridge, Wisconsin.

Heterotrypa solitaria Ulrich.

1883. Heterotrypa solitaria. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 88, pl. i, 3–3*b*.

Cincinnati (Lorraine): Covington, Kentucky; Maury County, Tennessee.

Heterotrypa subpulchella (Nicholson).

1875. Chætetes subpulchellus. Nicholson, Pal. Ohio, II, p. 196, pl. xxi, 6, 6*a*.

1881. Monticulipora (Heterotrypa) subpulchella. Nicholson, Genus Monticulipora, p. 134, fig. 23, pl. v, 2, 2*a*.

1883. Heterotrypa subpulchella. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 83.

1888. Monticulipora subpulchella. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 181.

1894. Monticulipora subpulchella. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 204.

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

Heterotrypa subramosa (Ulrich).

1879. Atactopora subramosa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 124, pl. xii, 6–6*c*.

Cincinnati (Richmond): Jacksonburg and Hanover, Ohio.

Obs. See also Monticulipora ?? clintonensis James.

Heterotrypa subramosa-prolifica Ulrich.

1890. Heterotrypa prolifica. Ulrich, Geol. Sur. Illinois, VIII, p. 413, pl. xxxvii, 1–1*d*.

1893. Heterotrypa prolifica. Ulrich, Geol. Minnesota, III, p. 268.

1895. Monticulipora prolifica. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 75.

1897. Heterotrypa prolifica. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 145, 146 (p. 579).

Cincinnati (Richmond): Blanchester, Waynesville, and other localities in Ohio; Richmond and Versailles, Indiana; Wilmington, Illinois; Iron Ridge, Wisconsin.

Heterotrypa vaupeli Ulrich. See Nicholsonella vaupeli (Ulrich).

HEXAGONELLA Waagen and Wentzel. Genotype: Hexagonella ramosa Waagen and Wentzel.

1886. Hexagonella. Waagen and Wentzel, Pal. Indica, Ser. XIII, pp. 909, 911.

Obs.—This genus is known in America by two undescribed species, one from the Hamilton at the Falls of the Ohio, the other from the Warsaw at Clarksville, Tennessee.

Hippothoa Lamouroux. Not a Paleozoic genus.

Hippothoa delicatula James. See Stomatopora delicatula (James).

Hippothoa inflata Nicholson. See Stomatopora inflata (Hall).

HOMOTRYPA Ulrich. Genotype: Homotrypa curvata Ulrich.

1882. Homotrypa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 240.

1883. Homotrypa. Foord, Contr. Micro-Pal. Cambro-Sil., p. 9.

1889. Homotrypa. Miller, North American Geol. Pal., p. 309.

1890. Homotrypa. Ulrich, Geol. Sur. Illinois, VIII, pp. 370, 409.

1893. Homotrypa. Ulrich, Geol. Minnesota, III, p. 235.

1896. Homotrypa. Ulrich, Zittel's Textb. Pal., (Engl. ed.), p. 273.

1897. Homotrypa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 575.

Homotrypa ? arbuscula Ulrich.

1890. Homotrypa arbuscula. Ulrich, Geol. Sur. Illinois, VIII, p. 409, pl. xxxviii, 3–3*c*.

1894. Homotrypa arbuscula. Keyes, Missouri Geol. Sur., V, p. 13.

Trenton (Stones River): High Bridge, Kentucky; Calhoun County and Dixon, Illinois.

Homotrypa callosa Ulrich.

1893. Homotrypa callosa. Ulrich, Geol. Minnesota, III, p. 243, pl. xx, 15–21.

1897. Homotrypa callosa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 139, 140 (p. 576).

Trenton: Burgin, Frankfort, and Garrard County, Kentucky; Cannon Falls, Minnesota.

Homotrypa ? confluens (Foerste).

1887. Monotrypella confluens. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 172; ibid., III, 1888, pl. xvi, 4.

1895. Homotrypa confluens. Foerste, Geol. Sur. Ohio, VII, p. 600.

Clinton: Dayton, Ohio.

Homotrypa curvata Ulrich.

1882. Homotrypa curvata. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 242, pl. x, 7–7*d*.

1895. Monticulipora curvata. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 71.

1897. Homotrypa curvata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 137, 138 (p. 576).

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

Homotrypa dawsoni (Nicholson).

1881. Monticulipora (Heterotrypa) Dawsoni. Nicholson, Genus Monticulipora, p. 141, pl. v, 3–3*f*.

1882. Monticulipora dawsoni. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 241.

1888. Monticulipora dawsoni. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 15.

Homotrypa dawsoni (Nicholson)—Continued.

1895. Monticulipora dawsoni. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 68.

Cincinnati (Lorraine and Richmond): Cincinnati, Waynesville, Clarksville, and Oregonia, Ohio; Versailles, Indiana.

Homotrypa exilis Ulrich.

1886. Homotrypa exilis. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 80.

1893. Homotrypa exilis. Ulrich, Geol. Minnesota, III, p. 236, pl. xix, 10–16.

Trenton (Stones River): Minneapolis, Minnesota.

Homotrypa flabellaris Ulrich.

1890. Homotrypa flabellaris. Ulrich, Geol. Sur. Illinois, VIII, p. 411, pl. xxxii, 3–3*c*.

1895. Monticulipora flabellaris. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 75.

Cincinnati (Lorraine and Richmond): Wilmington, Illinois; a common form in the Lorraine and Richmond groups of Ohio, Indiana, Kentucky, and Tennessee.

Homotrypa gelasinosa Ulrich.

1890. Homotrypa gelasinosa. Ulrich, Geol. Sur. Illinois, VIII, p. 410, pl. xxxii, 2–2*d*.

1894. Monticulipora gelasinosa. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 202.

Cincinnati (Richmond): Wilmington, Illinois.

Homotrypa insignis Ulrich. See Homotrypa subramosa-insignis Ulrich.

Homotrypa ? intercalaris Ulrich.

1893. Homotrypa ? intercalaris. Ulrich, Geol. Minnesota, III, p. 238, fig. 13.

Trenton (Black River): St. Paul and Minneapolis, Minnesota.

Homotrypa minnesotensis Ulrich.

1886. Homotrypa minnesotensis. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 79.

1893. Homotrypa minnesotensis. Ulrich, Geol. Minnesota, III, p. 235, pl. xix, 1–9.

Trenton (Stones River and Black River): Minneapolis, St. Paul, Lanesboro, Cannon Falls, Preston, and Fountain, Minnesota; Decorah, Iowa; Curdsville, Kentucky; Hartsville, Tennessee.

Homotrypa minnesotensis-montifera Ulrich.

1893. Homotrypa minnesotensis var. montifera. Ulrich, Geol. Minnesota, III. p. 236, pl. xix, 3*a*.

Trenton (Black River): St. Paul, Minnesota.

Homotrypa obliqua Ulrich.

1882. Homotrypa obliqua. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 243, pl. x, 6, 6*b*.

1889. Homotrypa obliqua. Miller, North American Geol. Pal., fig. 489 (p. 310).

1896. Homotrypa obliqua. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 124.

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

Homotrypa separata Ulrich.

1893. Homotrypa separata. Ulrich, Geol. Minnesota, III, p. 237, pl. xix, 17–20.

Trenton (Stones River): Minneapolis, Chatfield, and Preston, Minnesota.

Homotrypa ? similis Foord.

1883. Homotrypa similis. Foord, Contr. Micro-Pal. Cambro-Sil., p. 10, pl. ii, 2–2*d*.

1893. Homotrypa similis. Ulrich, Geol. Minnesota, III, p. 242, pl. xx, 28–33.

Trenton: Ottawa City, Ottawa; St. Paul, Cannon Falls, and Kenyon, Minnesota.

Homotrypa ? solida (Hall).

1852. Trematopora solida. Hall, Pal. New York, II, p. 153, pl. xlA, 6*a–c*.

Niagara: Lockport, New York.

Homotrypa subramosa Ulrich.

1886. Homotrypa subramosa. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 81.

1893. Homotrypa subramosa. Ulrich, Geol. Minnesota, III, p. 239, pl. xix, 21–28.

1896. Homotrypa subramosa. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 451 A–C (not D = Homotrypa separata Ulrich) (p. 273).

Trenton (Black River): St. Paul, Minneapolis, and Goodhue County, Minnesota.

Homotrypa subramosa-insignis Ulrich.

1886. Homotrypa insignis. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 82.

1893. Homotrypa subramosa var. insignis. Ulrich, Geol. Minnesota, III, p. 239.

Trenton: St. Paul and Goodhue and Fillmore counties, Minnesota; Decorah, Iowa.

Homotrypa tuberculata Ulrich.

1893. Homotrypa tuberculata. Ulrich, Geol. Minnesota, III, p. 240, fig. 14.

Trenton (Black River): Cannon Falls, Minnesota.

HOMOTRYPELLA Ulrich. Genotype: Homotrypella instabilis Ulrich.

1886. Homotrypella. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 83.

1889. Homotrypella. Miller, North American Geol. Pal., p. 310.

1890. Homotrypella. Ulrich, Geol. Sur. Illinois, VIII, pp. 370, 412.

1893. Homotrypella. Ulrich, Geol. Minnesota, III, p. 228.

1897. Homotrypella. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 586.

Homotrypella contexta Ulrich.

1890. Homotrypella contexta. Ulrich, Geol. Sur. Illinois, VIII, p. 412, pl. xxxii, 5–5*b*.

1895. Monticulipora contexta. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 74.

Cincinnati (Richmond): Wilmington, Illinois.

Homotrypella gracilis Ulrich. See Bythopora gracilis (Nicholson)

Homotrypella granulifera (Ulrich.)

1879. Chætetes granuliferus. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 128, pl. xii, 9–9*b*.

1882. Batostomella granulifera. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 141.

1889. Homotrypella granulifera. Miller, North American Geol. Pal., p. 310.

1896. Monticulipora (Fistulipora) granulifera. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 120.

Trenton: Burgin and Frankfort, Kentucky.

Homotrypella instabilis Ulrich.

1886. Homotrypella instabilis. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 83.

1893. Homotrypella instabilis. Ulrich, Geol. Minnesota, III, p. 229, pl. xviii, 9–20.

1897. Homotrypella instabilis. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 168, 169 (p. 586).

Trenton (Black River): Minneapolis, St. Paul, Cannon Falls, and Fountain, Minnesota.

Homotrypella meeki Ulrich. See Bythopora meeki (James).

Homotrypella multiporata Ulrich.

1893. Homotrypella multiporata. Ulrich, Geol. Minnesota, III, p. 230, pl. xviii, 21, 22.

Trenton (Black River): St. Paul and Minneapolis, Minnesota.

Homotrypella mundula Ulrich.

1893. Homotrypella mundula. Ulrich, Geol. Minnesota, III, p. 232, fig. 12*a–c*.

Trenton: Decorah, Iowa; Cannon Falls, Minnesota; Frankfort, Kentucky.

Homotrypella ? ovata Ulrich.

1893. Homotrypella ? ovata. Ulrich, Geol. Minnesota, III, p. 231, pl. xviii, 23–30.

Trenton (Black River and Trenton): Cannon Falls and Minneapolis, Minnesota.

Homotrypella rustica Ulrich.

1893. Homotrypella rustica. Ulrich, Geol. Minnesota, III, p. 234, pl. xviii, 31–33.

1896. Monticulipora (Fistulipora) rustica. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 120.

Cincinnati (Richmond): Spring Valley, Minnesota.

Homotrypella ? subgracilis Ulrich.

1893. Homotrypella ? subgracilis. Ulrich, Geol. Minnesota, III, p. 230, pl. xxvi, 10–16.

Trenton (Black River): Minneapolis and St. Paul, Minnesota.

Obs. This species may be a Bythopora.

Hornera Lamouroux. Not a Paleozoic genus.

Hornera ? dichotoma Hall. See Thamniscus dichotomus (Hall).

HYPHASMOPORA Etheridge, Jun. Genotype: Hyphasmopora buskii Etheridge, Jun., from the Carboniferous shales of Scotland.

1875. Hyphasmopora. Etheridge, Jun., Ann. Mag. Nat. Hist., ser. 4, XV, p. 43.

1889. Hyphasmopora. Vine, Proc. Yorkshire Geol. Polyt. Soc., XI, p. 188.

Obs. No American species have yet been referred to this genus.

ICHTHYORACHIS McCoy. Genotype: Ichthyorachis newenhami McCoy.

1844. Ichthyorachis. McCoy, Syn. Carb. Foss. Ireland, p. 205.

1887. Ichthyorachis. Hall and Simpson, Pal. New York, VI, p. xxv.

1889. Ichthyorachis. Miller, North American Geol. Pal., p. 310.

1897. Ichthyorachis. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 524.

Ichthyorachis nereis Hall.

1874. Ichthyorachis Nereis. Hall, Twenty-sixth Ann. Rep. New York State Museum, p. 98.

Ichthyorachis nereis Hall—Continued.

1879. Ichthyorachis Nereis. Hall, Thirty-second Ann. Rep. New York State Museum, p. 174 (reprint, 1880, p. 36).
1883. Ichthyorachis Nereis. Hall, Rep. State Geologist New York, for the year 1882, pl. xxii, 19–21.
1887. Ichthyorachis Nereis. Hall and Simpson, Pal. New York, VI, p. 66, pl. xxii, 19–21.
1897. Ichthyorachis Nereis. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. viii, 19–21.
Lower Helderberg: Schoharie, New York.

IDIOTRYPA Ulrich. Genotype: Idiotrypa parasitica Ulrich.

1883. Idiotrypa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 272.
1889. Idiotrypa. Miller, North American Geol. Pal., p. 310.
1890. Idiotrypa. Ulrich, Geol. Sur. Illinois, VIII, p. 375.
1897. Idiotrypa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 591.

Idiotrypa parasitica Ulrich.

1883. Idiotrypa parasitica. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 273, pl. xiii, 1–1*c*.
1897. Idiotrypa parasitica. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 187–189 (p. 591).
Niagara: Osgood, Indiana.

INTRAPORA Hall. Genotype: Intrapora puteolata Hall.

1883. Intrapora. Hall, Trans. Albany Institute, X, p. 157 (abstract, 1881, p. 16).
1887. Intrapora. Hall and Simpson, Pal. New York, VI, p. xxii.
1889. Intrapora. Miller, North American Geol. Pal., p. 310.
1890. Intrapora. Ulrich, Geol. Sur. Illinois, VIII, p. 394.
1897. Intrapora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 535.
Obs. See also Coscinella Hall and Simpson.

Intrapora basalis Ulrich.

1890. Stictoporella basalis. Ulrich, Geol. Sur. Illinois, VIII, p. 532, pl. lxxv, 5–5*c*, pl. lxviii, 5, 5*a*, pl. lxix, 2, 2*a*.
1894. Stictoporella basalis. Keyes, Missouri Geol. Sur., V, p. 22.
1897. Stictoporella basalis. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year ending 1894, figs, 91, 92 (p. 536).
Warsaw: Warsaw, Illinois.

Intrapora cosciniformis Ulrich. See Coscinella cosciniformis (Nicholson.

Intrapora elegantula Whiteaves. See Coscinella elegantula Hall and Simpson.

Intrapora puteolata Hall.

1883. Intrapora puteolata. Hall, Trans. Albany Institute, X, p. 158 (abstract, 1881, p. 16).
1886. Intrapora puteolata. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxix, 18–26.
1887. Intrapora puteolata. Hall and Simpson, Pal. New York, VI, p. 97, pl. xxix, 18–26.
1897. Intrapora puteolata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xi, 1–9.
Hamilton: Falls of the Ohio.

Intrapora undulata (Ulrich).

1890. Stictoporella ? undulata. Ulrich, Geol. Sur. Illinois, VIII, p. 533, pl. lxix, 6–6*b*.

Chester: Litchfield, Kentucky.

Intricaria Defrance. Not a Paleozoic genus.

Intricaria clathrata Miller and Dyer. See Phylloporina clathrata (Miller and Dyer).

Intricaria ? reticulata Hall. See Phylloporina reticulata (Hall.)

ISOTRYPA Hall. Genotype: Fenestella (Isotrypa) conjunctiva Hall.

1885. Isotrypa. Hall, Rep. State Geologist New York for the year 1884, p. 37.
1887. Isotrypa. Hall and Simpson, Pal. New York, VI, p. xxiii.
1889. Isotrypa. Miller, North American Geol. Pal., p. 310.
1890. Isotrypa (emend.). Ulrich, Geol. Sur. Illinois, VIII, p. 395.
1895. Isotrypa. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 689, 714, 726; Forty-seventh Ann. Rep. New York State Museum, pp. 883, 908, 920.
1895. Isotrypa. Whidborne, Devon. Fauna England, (Pal. Soc. Publ.), II, Part 4, p. 180.
1897. Isotrypa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 510, 520.
1895. Tectuliporella. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 715, 726; Forty-seventh Ann. Rep. New York State Museum, pp. 909, 920.
1897. Tectuliporella. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 510, 520.

Obs. Specimens of the type species of Tectuliporella show that the pore on the reverse side is frequently wanting and generally not uniformly developed. Hence there is no ground for Tectuliporella.

Isotrypa ambigua Ulrich. See Loculipora ambigua (Hall).

Isotrypa bifaria Hall. See Isotrypa conjunctiva (Hall).

Isotrypa conjunctiva (Hall).

1883. Fenestella (Hemitrypa) conjunctiva. Hall, Trans. Albany Institute, X, p. 178 (abstract, 1881, p. 36).
1887. Fenestella (Isotrypa) conjunctiva. Hall and Simpson, Pal. New York, VI, p. 143, pl. liv, 10–21.
1889. Isotrypa conjunctiva. Miller, North American Geol. Pal., fig. 490 (p. 310).
1897. Isotrypa conjunctiva. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 59 (p. 310), pl. vi, 7–12.
1885. Isotrypa bifaria (in error). Hall, Rep. State Geologist New York for the year 1884, pl. ii, 13, 16.

Upper Helderberg: Walpole, Ontario.

Isotrypa consimilis Hall.

1885. Isotrypa consimilis. Hall, Rep. State Geologist New York for the year 1884, pl. ii, 14.
1887. Fenestella (Unitrypa?) consimilis. Hall and Simpson, Pal. New York, VI, p. 142, pl. liv, 7–9.
1897. Tectuliporella consimilis. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. vi, 13–15.

Upper Helderberg: Walpole, Ontario.

Leioclema. See Lioclema.

Leioclema singulare Ulrich. See Trematopora ? singularis (Hall).

LEPTOTRYPA Ulrich. (Genotype: Leptotrypa minima Ulrich.

1883. Leptotrypa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 158.

1889. Leptotrypa. Miller, North American Geol. Pal., p. 311.

1890. Leptotrypa. Ulrich, Geol. Sur. Illinois, VIII, pp. 377, 455.

1893. Leptotrypa. Ulrich, Geol. Minnesota, III, p. 316.

1897. Leptotrypa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 580.

Leptotrypa ? acervulosa Ulrich.

1893. Leptotrypa acervulosa. Ulrich, Geol. Minnesota, III, p. 318, pl. xxvii, 24, 25.

Trenton: Decorah, Iowa; Goodhue County, Minnesota; Burgin and Frankfort, Kentucky.

Leptotrypa calceola (Miller and Dyer).

1878. Monticulipora calceola. Miller and Dyer, Jour. Cincinnati Soc. Nat. Hist., I, p. 26, pl. i, 11, 11*a*.

1881. Monticulipora (Monotrypa) calceola. Nicholson, Genus Monticulipora, p. 185, pl. i, 3–3*e*.

1883. Leptotrypa calceola. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 159.

1888. Monticulipora calceola. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 27.

1895. Monticulipora calceola. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 87.

Cincinnati (Lorraine): Cincinnati, Ohio.

Leptotrypa clavacoidea (James).

1871. Chætetes clavacoideus. James, Catal. Lower Sil. Foss., p. 1. (Only named.)

1875. Chætetes clavacoideus. James, Catal. Foss. Cincinnati Group, p. 1.

1881. Monticulipora (Monotrypa) clavacoidea. Nicholson, Genus Monticulipora, p. 182, fig. 37.

1883. Leptotrypa clavacoidea. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 159.

1888. Monticulipora clavacoidea. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 25.

1895. Monticulipora clavacoidea. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 84.

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

Leptotrypa ? claviformis Ulrich.

1893. Leptotrypa claviformis. Ulrich, Geol. Minnesota, III, p. 319, pl. xxvii, 20, 21.

Trenton (Black River): Minneapolis and St. Paul, Minnesota.

Leptotrypa ? clavis Ulrich.

1883. Leptotrypa clavis. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 161, pl. vi, 3, 3*a*.

Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

Leptotrypa ? cortex Ulrich.

1883. Leptotrypa cortex. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 162.

Cincinnati (Utica): Covington and Newport, Kentucky.

Leptotrypa discoidea Ulrich. See Amplexopora ? discoidea (James).

Leptotrypa ? dychei (James).

1882. Monticulipora (Monotrypa) dychei. James, Paleontologist, No. 6, p. 52.
1883. Monticulipora dychei. James, Jour. Cincinnati Soc. Nat. Hist., VI, p. 235, pl. x, 2–2*e*.
1888. Monticulipora dychei. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 25.
1895. Monticulipora dychei. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 83.
Cincinnati (Lorraine): Lebanon, Ohio.

Leptotrypa filiosa Ulrich. See Amplexopora filiosa (D'Orbigny).

Leptotrypa ? hexagonalis Ulrich.

1890. Leptotrypa hexagonalis. Ulrich, Geol. Sur. Illinois, VIII, p. 455, pl. xxxvi, 6, 6*a*.
1893. Leptotrypa hexagonalis. Ulrich, Geol. Minnesota, III, p. 317.
Trenton (Stones River): Mineral Point, Janesville, and Beloit, Wisconsin; Calhoun County, Illinois; Minneapolis, Minnesota.

Leptotrypa informis Ulrich.

1893. Leptotrypa informis. Ulrich, Geol. Minnesota, III, p. 317, pl. xxvii, 22, 23.
Trenton (Stones River): Minneapolis and St. Paul, Minnesota.

Leptotrypa ? irregularis (Ulrich).

1879. Chætetes irregularis. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 129, pl. xii, 10–10*b*.
1881. Monticulipora (Monotrypa) irregularis. Nicholson, Genus Monticulipora, p. 177, fig. 35.
1882. Monotrypa irregularis. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 256.
1888. Monticulipora irregularis. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 163.
1893. Monticulipora irregularis. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XV, p. 159.
Cincinnati (Lorraine): Hamilton, Morrow, Mason, and Cincinnati, Ohio.

Leptotrypa maculata Ulrich. See Paleschara ? maculata Hall.

Leptotrypa minima Ulrich.

1883. Leptotrypa minima. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 159, pl. vi, 2–2*b*.
Cincinnati (Lorraine): Hamilton, Ohio.

Leptotrypa offula Ulrich. See Paleschara ? offula Hall.

Leptotrypa ornata Ulrich.

1883. Leptotrypa ornata. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 160, pl. vi, 4, 4*a*.
Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

Leptotrypa ? quadrangularis (Nicholson).

1874. Chætetes quadrangularis. Nicholson, Geol. Mag., new ser., I, p. 58, pl. iv, 8.
1874. Chætetes quadrangularis. Nicholson, Pal. Province Ontario, p. 61, fig. 18, *a*, *b*.
1889. Paleschara quadrangularis. Miller, North American Geol. Pal., p. 177.
1890. Leptotrypa quadrangularis. Ulrich, Geol. Sur. Illinois, VIII, p. 455.
1891. Paleschara quadrangularis. Whiteaves, Contr. Canadian Pal., I, p. 213.
1892. Leptotrypa quadrangularis. Whiteaves, Contr. Canadian Pal., I, p. 277.
1883. Paleschara amplectens. Hall, Trans. Albany Institute, X, p. 179 (abstract, 1881, p. 179).

Leptotrypa ? quadrangularis (Nicholson)—Continued.

1884. Paleschara amplectens. Hall, Rep. State Geologist New York for the year 1883, p. 7.

1887. Paleschara amplectens. Hall and Simpson, Pal. New York, VI, p. 237.

1891. Paleschara amplectens. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 40; Forty-fourth Ann. Rep. New York State Museum, p. 70.

1899. Paleschara amplectens. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 171.

Hamilton: Arkona, Ontario; Seneca Lake, New York (Hall); Hay River, Red Deer River, and near Dawson Bay, Canada (Whiteaves).

Leptotrypa ? semipilaris Ulrich.

1890. Leptotrypa semipilaris. Ulrich, Geol. Sur. Illinois, VIII, p. 457, pl. xxxvi, 5–5*d*.

1894. Leptotrypa semipilaris. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 181.

1897. Leptotrypa semipilaris. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 148 (not 149, 150=Leptotrypa acervulosa), p. 580.

Cincinnati (Lorraine): Covington, Kentucky; Cincinnati, Ohio.

Leptotrypa ? sphærion (Hall).

1876. Paleschara ? sphærion. Hall, Twenty-eighth Ann. Rep. New York State Museum (documentary edition), pl. viii, 14, 15.

1879. Paleschara ? (Chætetes?) sphærion. Hall, Twenty-eighth Ann. Rep. New York State Museum (Museum edition), p. 121, pl. viii, 14, 15.

1882. Paleschara ? (Chætetes ?) sphærion. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 247, pl. vii, 14, 15.

Niagara: Waldron, Indiana.

Leptotrypa stidhami Ulrich.

1890. Leptotrypa stidhami. Ulrich, Geol. Sur. Illinois, VIII, p. 456, pl. xxxvi, 4–4*b*.

1895. Monticulipora stidhami. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 76.

Cincinnati (Richmond): Brown County and near Eaton, Ohio; Madison, Indiana.

Lichenalia (not of Hall, 1852), Hall and Simpson, and other authors. See Fistulipora McCoy.

LICHENALIA Hall. Genotype: Lichenalia concentrica Hall.

1852. Lichenalia. Hall, Pal. New York, II, p. 171.

Obs. With the Lichenalia concentrica from Lockport, New York, Hall identified a form bearing a superficial resemblance, occurring at Waldron, Indiana; the latter is a species of Fistulipora and entirely different in structure from the Lockport Lichenalia concentrica. In his later work, and in this he has been followed by other authors, Hall used the Waldron form as the type of the genus. Consult the synonymy given under Fistulipora.

Lichenalia alternata Hall. See Fistulipora alternata (Hall).

Lichenalia alveata Hall. See Buskopora bistriata (Hall).

Lichenalia (Odontotrypa) alveata Hall. See Buskopora bistriata (Hall).

Lichenalia bistriata Hall. See Buskopora bistriata (Hall).

Lichenalia bullata Hall. See Fistulipora ? bullata (Hall and Simpson).

Lichenalia ? calycula James. See Aspidopora calycula (James).

Lichenalia carinata Hall. Not recognized.

1883. Lichenalia carinata. Hall, Trans. Albany Institute, X, p. 151 (abstract, 1881, p. 9).

Hamilton: Falls of the Ohio.

Lichenalia circincta Hall. See Selenopora circincta (Hall).

Lichenalia (Selenopora) circincta Hall and Simpson. See Selenopora circincta (Hall).

Lichenalia clivulata Hall. See Eridopora ? clivulata (Hall).

Lichenalia (Pileotrypa) clivulata Hall. See Eridopora ? clivulata (Hall)

Lichenalia colliculata Hall. See Fistulipora colliculata (Hall).

Lichenalia (Selenopora) complexa Hall and Simpson. See Selenopora complexa (Hall).

Lichenalia complexata Hall. See Selenopora complexa (Hall).

Lichenalia concentrica Hall (in part) and other authors. See Fistulipora neglecta Rominger.

Lichenalia concentrica Hall.

1852. Lichenalia concentrica. Hall, Pal. New York, II, p. 171, pl. xl E, 5*a–g*.

Niagara: Lockport, New York.

Obs. See remarks under the genus Lichenalia.

Lichenalia concentrica var. maculata Hall. See Fistulipora neglecta-maculata (Hall).

Lichenalia concentrica var. parvula Hall. See Fistulipora halli Rominger.

Lichenalia confusa Hall. See Fistulipora ? confusa (Hall).

Lichenalia constricta Hall. See Fistulipora ? constricta (Hall).

Lichenalia conulata Hall. See Fistulipora ? conulata (Hall).

Lichenalia cornuta Hall. See Fistulipora cornuta (Hall and Simpson).

Lichenalia crassa Hall. See Fistulipora ? crassa (Hall).

Lichenalia (Phractopora) cristata var. lineata Hall. See Phractopora cristata Hall.

Lichenalia crustacea Hall. Not recognized.

1883. Lichenalia crustacea. Hall, Trans. Albany Institute, X, p. 150 (abstract, 1881, p. 8).

Hamilton: Falls of the Ohio.

Lichenalia cultellata Hall. See Fistulipora cultellata (Hall).

Lichenalia denticulata Hall. See Eridopora denticulata (Hall).

Lichenalia (Pileotrypa) denticulata Hall. See Eridopora denticulata (Hall).

Lichenalia dissimilis Hall. See Paleschara ? dissimilis (Hall).

Lichenalia distans Hall. See Fistulipora distans (Hall).

Lichenalia distans Hall and Simpson (in error). See Fistulipora distensa (Hall).

Lichenalia distensa Hall. See Fistulipora distensa (Hall).

Lichenalia foliacea Hall. See Fistulipora foliacea (Hall).

Lichenalia geometrica Hall. See Fistulipora geometrica (Hall).

Lichenalia granifera Hall. See Fistulipora ? granifera (Hall).

Lichenalia (Pileotrypa) granifera Hall. See Fistulipora ? granifera (Hall).

Lichenalia (Ceramopora) imbricella Hall. See Ceramopora ? imbricella Hall.

Lichenalia interaspera Simpson. See Fistulipora interaspera Hall and Simpson.

Lichenalia longispina Hall. See Lichenotrypa longispina (Hall).

Lichenalia (Lichenotrypa) longispina Hall and Simpson. See Lichenotrypa longispina (Hall).

Lichenalia lunata Hall. See Buskopora dentata Ulrich.

Lichenalia lunata var. tubulata Hall. See Buskopora dentata (Ulrich).

Lichenalia maculosa Hall and Simpson. See Fistulipora maculosa (Hall).

Lichenalia operculata Hall and Simpson. See Pinacotrypa operculata (Hall and Simpson).

Lichenalia ovata Hall. See Fistulipora ovata (Hall).

Lichenalia paliformis Hall. See Glossotrypa paliformis (Hall).

Lichenalia (Glossotrypa) paliformis Hall. See Glossotrypa paliformis (Hall).

Lichenalia permarginata Hall. See Fistulipora ? permarginata (Hall).

Lichenalia pustulosa Hall and Simpson. See Fistulipora ? pustulosa (Hall and Simpson).

Lichenalia pyriformis Hall. See Buskopora pyriformis (Hall).

Lichenalia radiata Hall. Not recognized.

1883. Lichenalia radiata. Hall, Trans. Albany Institute, X, p. 152 (abstract, 1881, p. 10).

Upper Helderberg: Onondaga Valley, New York.

Lichenalia ramosa Hall. See Fistulipora ramosa (Hall).

Lichenalia serialis Hall. See Fistulipora serialis (Hall and Simpson).

Lichenalia stellata Hall. See Pinacotrypa stellata (Hall).

Lichenalia subcava Hall. See Fistulipora subcava (Hall).

Lichenalia substellata Hall. See Fistulipora substellata (Hall).

Lichenalia subtrigona Hall. See Fistulipora subtrigona (Hall).

Lichenalia tessellata Hall and Simpson. See Favicella tessellata (Hall and Simpson).

Lichenalia torta Hall. See Fistulipora torta (Hall) and Fistulipora serialis (Hall).

Lichenalia tortuosa (in error for torta) Hall. See Fistulipora serialis (Hall).

Lichenalia vesiculata Hall and Simpson. See Fistulipora vesiculata (Hall).

LICHENOTRYPA Ulrich. Genotype: Lichenotrypa cavernosa Ulrich = Lichenotrypa longispina (Hall).

1886. Lichenotrypa. Ulrich, Contr. American Pal., I, p. 23.

LICHENOTRYPA Ulrich—Continued.

1887. Lichenotrypa. Hall and Simpson, Pal. New York, VI, p. xvii.
1889. Lichenotrypa. Miller, North American Geol. Pal., p. 312.
1890. Lichenotrypa. Ulrich, Geol. Sur. Illinois, VIII, p. 383.
1896. Lichenotrypa. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 270.
1897. Lichenotrypa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 556.

Lichenotrypa aspera (in error for cavernosa) Ulrich. See Lichenotrypa longispina (Hall).

Lichenotrypa cavernosa Ulrich. See Lichenotrypa longispina (Hall).

Lichenotrypa longispina (Hall).

1883. Lichenalia longispina. Hall, Trans. Albany Institute, X, p. 153 (abstract, 1881, p. 11).
1886. Lichenotrypa longispina. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxv, 11, 12.
1887. Lichenalia (Lichenotrypa) longispina. Hall and Simpson, Pal. New York, VI, p. 287, pl. xxv, 11, 12.
1897. Lichenotrypa longispina. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxiii, 7.
1886. Lichenotrypa cavernosa. Ulrich, Contr. American Pal., I, p. 24, pl. ii, 7. (In explanation of plate ii called Lichenotrypa aspera in error.)
Hamilton: Falls of the Ohio.

Limaria Steininger. Not a bryozoan genus.

Limaria falcata Prout. Probably a bryozoan, but not recognizable.

1859. Limaria falcata. Prout, Trans. St. Louis Acad. Sci., I, p. 446, pl. xviii, 1–1*c*.
Devonian: Falls of the Ohio.

LIOCLEMA Ulrich. Genotype: Callopora punctata Hall.

1882. Leioclema. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, pp. 141, 154.
1889. Leioclema. Miller, North American Geol. Pal., p. 310.
1890. Leioclema. Ulrich, Geol. Sur. Illinois, VIII, pp. 376, 425.

Lioclema ? araneum Ulrich.

1890. Leioclema ? araneum. Ulrich, Geol. Sur. Illinois, VIII, p. 431, pl. lxxv, 9–9*c*.
1894. Leioclema araneum. Keyes, Missouri Geol. Sur., V, p. 14.
Chester: Chester, and Monroe County, Illinois; Pulaski and Jackson counties, Kentucky.

Lioclema asperum (Hall).

1852. Callopora aspera. Hall, Pal. New York, II, p. 147, pl. xl, 4*a*–*i*.
1890. Leioclema asperum. Ulrich, Geol. Sur. Illinois, VIII, pp. 416, 425.
Niagara: Lockport, New York.

Lioclema cellulosum (Hall).

1879. Callopora cellulosa. Hall, Thirty-second Ann. Rep. New York State Museum, p. 154 (reprint, 1880, p. 16).
1883. Callopora cellulosa. Hall, Rep. State Geologist New York for the year 1882, pl. xii, 7–9, pl. xiii, 9.
1887. Callopora cellulosa. Hall and Simpson, Pal. New York, VI, p. 21, pl. xii, 1–9, pl. xiii, 9, pl. xxiii A, 6.
1890. Leioclema cellulosum. Ulrich, Geol. Sur. Illinois, VIII, p. 425.
1879. Callopora fistulosa. Hall, Thirty-second Ann. Rep. New York State Museum, p. 154 (reprint, 1880, p. 16).

Lioclema cellulosum (Hall)—Continued.

1883. Callopora fistulosa. Hall, Rep. State Geologist New York for the year 1882, pl. xii, 1–6.

Lower Helderberg: Clarksville, New York.

Lioclema confertiporum (Hall).

1883. Thallostigma confertipora. Hall, Trans. Albany Institute, X, p. 184 (abstract, 1881, p. 184).

1884. Thallostigma confertipora. Hall, Rep. State Geologist New York for the year 1883, p. 19.

1887. Fistulipora confertipora. Hall and Simpson, Pal. New York, VI, p. 211, pl. lviii, 1–5.

1897. Fistuliporina confertipora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxi, 13.

Hamilton: Moscow, New York.

Obs. See note on Lioclema minutum (Rominger).

Lioclema decipiens (Hall).

1883. Thallostigma decipiens. Hall, Trans. Albany Institute, X, p. 187 (abstract, 1881, p. 187).

1884. Thallostigma decipiens. Hall, Rep. State Geologist New York for the year 1883, p. 29.

1887. Fistulipora decipiens. Hall and Simpson, Pal. New York, VI, p. 232, pl. lix, 9.

Hamilton: York, New York.

Obs. See note on Lioclema minutum (Rominger).

Lioclema densum (Hall).

1883. Thallostigma densa. Hall, Trans. Albany Institute, X, p. 186 (abstract, 1881, p. 186).

1884. Thallostigma densa. Hall, Rep. State Geologist New York for the year 1883, p. 25.

1887. Fistulipora densa. Hall and Simpson, Pal. New York, VI, p. 231.

Hamilton: York, New York.

Obs. See note on Lioclema minutum (Rominger).

Lioclema digitatum (Hall).

1883. Thallostigma digitata. Hall, Trans. Albany Institute, X, p. 185 (abstract, 1881, p. 185).

1884. Thallostigma digitata. Hall, Rep. State Geologist New York for the year 1883, p. 24.

1887. Fistulipora digitata. Hall and Simpson, Pal. New York, VI, p. 229, pl. lix, 12, 13.

1897. Fistuliporina digitata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxi, 11.

1899. Fistuliporina digitata. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 170, fig. 65.

Hamilton: Hamburg, Erie County, New York.

Obs. See note on Lioclema minutum (Rominger).

Lioclema ? exsul (Hall).

1876. Alveolites exsul. Hall, Twenty-eighth Ann. Rep. New York State Museum (documentary edition), pl. ix, 3, 4.

1879. Callopora exsul. Hall, Twenty-eighth Ann. Rep. New York State Museum (Museum edition), p. 115, pl. ix, 3, 4.

1882. Callopora exsul. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 238, pl. viii, 3, 4.

1889. Callopora ? exsul. Miller, North American Geol. Pal., fig. 463 (p. 295).

Niagara: Waldron, Indiana.

Lioclema (? Nicholsonella) floridum (Hall).

1852. Callopora florida. Hall, Pal. New York, II, p. 146, pl. xl, 2*a–f*.
1890. Leioclema florida. Ulrich, Geol. Sur. Illinois, VIII, pp. 416, 425.
Niagara: Lockport, New York.

Lioclema foliatum Ulrich.

1889. Leioclema foliatum. (Ulrich, in press), Miller, North American Geol. Pal., fig. 491 (p. 311).
1890. Leioclema foliatum. Ulrich, Geol. Sur. Illinois, VIII, p. 431, fig. 1.
1894. Leioclema foliatum. Keyes, Missouri Geol. Sur., V, p. 14.
1896. Lioclema foliata. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 465 (p. 277).
Warsaw: Warsaw, Illinois.

Lioclema gracillimum Ulrich.

1888. Leioclema gracillimum. Ulrich, Bull. Denison Univ., IV, p. 92. (Not described.)
1890. Leioclema gracillimum. Ulrich, Geol. Sur. Illinois, VIII, p. 429, pl. lxxv, 6–6*b*.
1894. Leioclema gracillimum. Keyes, Missouri Geol. Sur., V, p. 13.
Kinderhook: Marshalltown, Iowa.
Burlington: Burlington, Iowa.
Keokuk: Keokuk, Iowa, and other localities.
Warsaw: Warsaw, Illinois.
Waverly: Lodi, Ohio.

Lioclema intercellatum (Hall).

1883. Thallostigma intercellata. Hall, Trans. Albany Institute, X, p. 154 (abstract, 1881, p. 13).
1886. Fistulipora intercellata. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxxii, 15–20.
1887. Fistulipora intercellata. Hall and Simpson, Pal. New York, VI, p. 87, pl. xxxii, 15–20.
Hamilton: Falls of the Ohio.
Obs. See note on Lioclema minutum (Rominger).

Lioclema involvens (Hall and Simpson).

1887. Fistulipora involvens. Hall and Simpson, Pal. New York, VI, p. 221, pl. lix, 2.
Hamilton: Near Alden Station, New York.
Obs. See note on Lioclema minutum (Rominger).

Lioclema (? Nicholsonella) laminatum (Hall).

1852. Callopora laminata. Hall, Pal. New York, II, p. 146, pl. xl, 3*a–e*.
1890. Leioclema ? laminatum. Ulrich, Geol. Sur. Illinois, VIII, pp. 416, 425.
Niagara: Lockport, New York.

Lioclema microporum (Hall).

1883. Thallostigma micropora. Hall, Trans. Albany Institute, X, p. 186 (abstract, 1881, p. 186).
1884. Thallostigma micropora. Hall, Rep. State Geologist New York for the year 1883, p. 26.
1887. Fistulipora micropora. Hall and Simpson, Pal. New York, VI, p. 220, pl. lvii, 20, pl. lix, 3.
1897. Fistuliporina micropora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxi, 6–8.
1899. Fistuliporina micropora. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 169, fig. 63.
Hamilton: Eighteenmile Creek, Erie County, New York.
Obs. See note on Lioclema minutum (Rominger).

Lioclema minutissimum (Nicholson).

1875. Callopora minutissima. Nicholson, Pal. Province Ontario, p. 77, fig. 43.

1898. Leioclema minutissimum. Whiteaves, Contr. Canadian Pal., I, p. 380.

Hamilton: Arkona, Ontario.

Obs. See note on Lioclema minutum (Rominger).

Lioclema minutum (Rominger).

1866. Fistulipora minuta. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 120.

1887. Fistulipora minuta (?). Hall and Simpson, Pal. New York, VI, p. 223, pl. lix, 5–8.

1890. Leioclema minutum. Ulrich, Geol. Sur. Illinois, VIII, p. 427.

1899. Fistuliporina minuta. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 169, fig. 64.

1883. Thallostigma striata. Hall, Trans. Albany Institute, X, p. 186 (abstract, 1881, p. 186).

1884. Thallostigma striata. Hall, Rep. State Geologist New York for the year 1884, p. 28.

Hamilton: Near Alpena, Michigan; Buffalo and Davenport, Iowa; Andalusia and Rock Island, Illinois; Erie County, Delphi, and West Hamburg, New York.

Obs. We believe the following species to be closely related to, if not identical with, this species: Lioclema confertiporum, decipiens, digitatum, intercellatum, involvens, microporum, minutissimum, multaculeatum, punctillatum, segregatum, and subtile. However, before they are placed as actual synonyms, the types, if accessible, or specimens from the typical localities, must be studied.

Lioclema multaculeatum (Hall).

1884. Thallostigma multaculeata. Hall, Rep. State Geologist New York for the year 1883, p. 23.

1887. Fistulipora multaculeata. Hall and Simpson, Pal. New York, VI, p. 228, pl. lix, 10, 11.

1897. Fistuliporina multiculeata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxi, 12.

Hamilton: Darien Center, New York.

Obs. See note on Lioclema minutum (Rominger).

Lioclema occidens (Hall and Whitfield).

1873. Fistulipora occidens. Hall and Whitfield, Twenty-third Ann. Rep. New York State Museum, p. 228, pl. x, 9, 10.

1890. Leioclema occidens. Ulrich, Geol. Sur. Illinois, VIII, p. 426.

1878. Callopora cincinnatiensis. Ulrich, Jour. Cincinnati Soc. Nat. Hist., I, p. 93, pl. iv, 8, 8*a*.

1882. Callopora cincinnatiensis. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 142, pl. vi, 18, 18*a*.

Hamilton: Hackberry, Rockford, Independence, and Buffalo, Iowa; Rock Island, Illinois; Calloway County, Missouri.

Lioclema parasiticum (Hall).

1879. Callopora parasitica (in part). Hall, Thirty-second Ann. Rep. New York State Museum, p. 157 (reprint, 1880, p. 19).

1883. Callopora parasitica. Hall, Rep. State Geologist New York for the year 1882, pl. xiv, 13–18.

1887. Fistulipora parasitica. Hall and Simpson, Pal. New York, VI, p. 28, pl. xiv, 13; 14, pl. xxiii, 4.

Lioclema parasiticum (Hall)—Continued.

1890. Leioclema parasiticum. Ulrich, Geol. Sur. Illinois, VIII, p. 425.
Lower Helderberg: Clarksville, New York.

Lioclema ponderosum (Hall).

1874. Callopora ponderosa. Hall, Twenty-sixth Ann. Rep. New York State Museum, p. 103.
1879. Callopora ponderosa. Hall, Thirty-second Ann. Rep. New York State Museum, p. 156 (reprint, 1880, p. 18).
1883. Callopora ponderosa. Hall, Rep. State Geologist New York for the year 1882, pl. xiv, 9–12.
1887. Fistulipora ponderosa. Hall and Simpson, Pal. New York, VI, p. 27, pl. xiv, 9–12, pl. xxiiiA, 8–10.
1890. Leioclema ponderosum. Ulrich, Geol. Sur. Illinois, VIII, p. 425.
1897. Fistuliporina ponderosa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxi, 14.
Lower Helderberg: Schoharie, New York.

Lioclema punctatum (Hall).

1858. Callopora punctata. Hall, Geol. Iowa, I, Part 2, p. 653.
1882. Leioclema punctata. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 141, pl. vi, 1, 1*a*.
1888. Leioclema punctatum. Ulrich, Bull. Denison Univ., IV, p. 91.
1890. Leioclema punctatum. Ulrich, Geol. Sur. Illinois, VIII, p. 430.
1894. Leioclema punctatum. Keyes, Missouri Geol. Sur., V, p. 13.
1866. Callopora missouriensis. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 117.
Keokuk: Keokuk, Iowa; Kings Mountain, Kentucky; Lagrange, Missouri.
Warsaw: Warsaw and Columbia, Illinois.
Waverly: Cuyahoga Valley, Ohio.

Lioclema punctillatum (Winchell).

1866. Callopora punctillata. Winchell, Rep. Lower Peninsula Michigan, p. 88.
Hamilton: Petoskey, Michigan.
Obs. See note on Lioclema minutum (Rominger).

Lioclema segregatum (Hall).

1883. Thallostigma segregata. Hall, Trans. Albany Institute, X, p. 186 (abstract, 1881, p. 186).
1884. Thallostigma segregata. Hall, Rep. State Geologist New York for the year 1883, p. 27.
1887. Fistulipora segregata. Hall and Simpson, Pal. New York, VI, p. 219, pl. lix, 4.
1899. Fistuliporina segregata. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 168, fig. 62.
Hamilton: Eighteenmile Creek, New York.
Obs. See note on Lioclema minutum (Rominger).

Lioclema spheroideum (Hall).

1883. Thallostigma spheroidea. Hall, Trans. Albany Institute, X, p. 187 (abstract, 1881, p. 187).
1884. Thallostigma spheroidea. Hall, Rep. State Geologist New York for the year 1883, p. 31.
1887. Fistulipora spheroidea. Hall and Simpson, Pal. New York, VI, p. 225, pl. lvii, 3, 4.
Hamilton: York, New York.

Lioclema subglobosum Ulrich.

1890. Leioclema subglobosum. Ulrich, Geol. Sur. Illinois, VIII, p. 428, pl. lxxv, 8–8*b*.

Kinderhook: Marshalltown, Iowa.

Lioclema subtile (Hall).

1883. Thallostigma subtilis. Hall, Trans. Albany Institute, X, p. 187 (abstract, 1881, p. 187).

1884. Thallostigma subtilis. Hall, Rep. State Geologist New York for the year 1883, p. 30.

1887. Fistulipora ? subtilis. Hall and Simpson, Pal. New York, VI, p. 233.

1898. Fistulipora ? subtilis. Whiteaves, Contr. Canadian Pal., I, p. 380.

Hamilton: West Williams, Ontario.

Obs. See note on Lioclema minutum (Rominger).

Lioclema wachsmuthi Ulrich.

1890. Leioclema wachsmuthi Ulrich. Geol. Sur. Illinois, VIII, p. 428, pl. lxxv, 7–7*b*.

Kinderhook: Marshalltown, Iowa.

Lioclema ? wilmingtonense Ulrich.

1890. Leioclema wilmingtonense. Ulrich, Geol. Sur. Illinois, VIII, p. 426, pl. xxxiv, 4–4*b*.

1895. Monticulipora wilmingtonense. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 76.

Cincinnati (Richmond): Wilmington, Illinois.

LIOCLEMELLA Foerste. Genotype: Callopora ohioensis Foerste.

1895. Lioclemella. Foerste, Geol. Sur. Ohio, VII, p. 600.

Lioclemella annulifera (Whitfield).

1878. Trematopora annulifer. Whitfield, Ann. Rep. Geol. Sur. Wisconsin for the year 1877, p. 67.

1882. Trematopora annulifer. Whitfield, Geol. Sur. Wisconsin, IV, p. 254, pl. xi, 15–17.

1882. Batostomella annulifera. Ulrich, Jour. Cincinnati Soc. Nat Hist., V, p. 141.

1895. Lioclemella annulifera. (Ulrich) Foerste, Geol. Sur. Ohio, VII, p. 600.

Cincinnati (Richmond): Delafield and Iron Ridge, Wisconsin; Eaton, Ohio.

Lioclemella fusiformis (Whitfield).

1878. Chætetes fusiformis. Whitfield, Ann. Rep. Geol. Sur. Wisconsin for the year 1877, p. 70.

1882. Chætetes fusiformis. Whitfield, Geol. Sur. Wisconsin, IV, p. 248, pl. xi, 13, 14.

1895. Lioclemella fusiformis. (Ulrich) Foerste, Geol. Sur. Ohio, VII, p. 600.

Cincinnati (Richmond): Iron Ridge, Wisconsin.

Lioclemella nitida (Ulrich).

1890. Trematopora ? nitida. Ulrich, Geol. Sur. Illinois, VIII, p. 419, pl. xxxiv, 2–2*f*.

1895. Lioclemella nitida. (Ulrich) Foerste, Geol. Sur. Ohio, VII, p. 600.

Cincinnati (Richmond): Savannah, Illinois.

Lioclemella ohioensis (Foerste).

1887. Callopora ohioensis. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 174; ibid., III, 1888, pl. xvi, 6.

1895. Lioclemella ohioensis. Foerste, Geol. Sur. Ohio VII, p. 600, pl. xxix, 6.

Clinton: Dayton and Centerville, Ohio.

Lioclemella solidissima (Whitfield).

1878. Fistulipora solidissima. Whitfield, Ann. Rep. Geol. Sur. Wisconsin for the year 1877, p. 69.

1882. Fistulipora solidissima. Whitfield, Geol. Sur. Wisconsin, IV, p. 255, pl. xi, 18, 19.

Cincinnati (Richmond): Delafield and Iron Ridge, Wisconsin; Savannah, Illinois.

Lioclemella subfusiformis (James).

1882. Monticulipora (? Monotrypa) subfusiformis. James, Paleontologist, No. 6, p. 52; ibid., No. 7, 1883, pl. i, 1.

1888. Monticulipora fusiformis (not of Whitfield). James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 26.

1895. Monticulipora fusiformis, (not of Whitfield). J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 83.

Cincinnati (Richmond): Warren and Clinton counties, Ohio.

LOCULIPORA Hall. Genotype: Fenestella perforata Hall.

1885. Loculipora. Hall, Rep. State Geologist New York for the year 1884, p. 37.

1887. Loculipora. Hall and Simpson, Pal. New York, VI, p. xxiii.

1889. Loculipora. Miller, North American Geol. Pal., p. 312.

1895. Loculipora. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 690, 716, 726; Forty-seventh Ann. Rep. New York State Museum, pp. 884, 910, 920.

1897. Loculipora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 511, 520.

1899. Loculipora. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 160.

1888. Tectulipora. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, [p. 395]; Forty-first Ann. Rep. New York State Museum, [p. 395]. (Not defined).

1895. Tectulipora. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 690, 715, 726; Forty-seventh Ann. Rep. New York State Museum, pp. 884, 909, 920.

1897. Tectulipora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 511, 520.

Obs. Sections of Loculipora perforata show that the nonporiferous dissepiments are reduced to a minimum, the branches coming close together (anastomosing); but it is not correct to say that the dissepiments are celluliferous. The structure is in all essential respects precisely as in the species loculata, the type of Tectulipora.

Loculipora ambigua (Hall).

1876. Hemitrypa dubia. Hall, Twenty-eighth Ann. Rep. New York State Museum (documentary edition), pl. xi, 17–21.

1879. Fenestella ambigua. Hall, Twenty-eighth Ann. Rep. New York State Museum (Museum edition), p. 123, pl. xi, 17–21.

1882. Fenestella ambigua. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 248, pl. xi, 17–21.

1889. Loculipora ambigua. Miller, North American Geol. Pal., p. 312.

1890. Isotrypa ambigua. Ulrich, Geol. Sur. Illinois, VIII, p. 534.

Niagara: Waldron, Indiana.

Loculipora circumstata (Hall and Simpson).

1887. Fenestella (Loculipora) circumstata. Hall and Simpson, Pal. New York, VI, p. 144, pl. liv, 22–25.

Upper Helderberg: Walpole, Ontario.

Loculipora circumstata (Hall and Simpson)—Continued.

Obs. This form and that described as Loculipora perforata may prove to be the same species.

Loculipora loculata (Hall).

1888. Fenestella (Tectulipora) loculata. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887 [p. 395]; Forty-first Ann. Rep. New York State Museum [p. 395].

1897. Tectulipora loculata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 60, 61 (p. 511), pl. vii, 1–5 (called Tectulipora biperforata on the explanation sheet).

1888. Fenestella parallela. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. ix, 6–11; Forty-first Ann. Rep. New York State Museum, pl. ix, 6–11.

Lower Helderberg: Clarksville, New York.

Loculipora perforata (Hall).

1881. Fenestella perforata. Hall, Thirty-sixth Ann. Rep. New York State Museum, p. 65.

1885. Loculipora perforata. Hall, Rep. State Geologist New York for the year 1884, pl. ii, 15.

1887. Fenestella (Loculipora) perforata. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 62.

1888. Fenestella (Loculipora) perforata. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. x, 1–13; Forty-first Ann. Rep. New York State Museum, pl. x, 1–13.

1897. Loculipora perforata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. vii, 6–12.

1899. Loculipora perforata. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 160, fig. 49.

Hamilton: Darien and near Canandaigua Lake, New York.

LYROPORA Hall. Genotype: Fenestella (Lyropora) subquadrans Hall.

1857. Lyropora. Hall, Proc. American Assoc. Adv. Sci., X, p. 179.

1882. Lyropora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 150.

1883. Lyropora. Claypole, Quar. Jour. Geol. Soc. London, XXXIX, p. 32.

1885. Lyropora. Hall, Rep. State Geologist New York for the year 1884, p. 37.

1885. Lyropora. Waagen and Pichl, Pal. Indica, Ser. XIII, p. 773.

1886. Lyropora. Ulrich, Contr. American Pal., I, p. 5.

1889. Lyropora. Miller, North American Geol. Pal., p. 312.

1890. Lyropora. Ulrich, Geol. Sur. Illinois, VIII, pp. 396, 580.

1895. Lyropora. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 689, 723, 726; Forty-seventh Ann. Rep. New York State Museum, pp. 883, 917, 920.

1896. Lyropora. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 282.

1897. Lyropora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 515, 522.

1895. Lyroporella. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 701, 724, 727; Forty-seventh Ann. Rep. New York State Museum, pp. 895, 918, 921.

1897. Lyroporella. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 516, 522.

1895. Lyroporina. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 723, 727; Forty-seventh Ann. Rep. New York State Museum, pp. 917, 921.

LYROPORA Hall—Continued.

1897. Lyroporina. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 522.

1897. Lyroporidra. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 517, 522.

Obs. On page 701 of the Thirteenth Ann. Rep. State Geologist New York for the year 1893 Simpson proposes the name Lyroporella for species of Lyropora having but two ranges of cells on a branch throughout. On page 723 of the same work the name Lyrōporina is proposed for the same group. No genotype is mentioned, nor do we know of any species having but two ranges of cells. This group is therefore apparently imaginary, and should strictly not have been placed above as a synonym of Lyropora. On page 724 a new genus Lyroporella is made for forms having two ranges of cells on the narrower portion of the branches and three or more on the wider portion.

In the Fourteenth Annual Report of the State Geologist of New York for the year 1894 Lyroporella is held for the two and three ranged forms, Lyroporina for the two ranged, and a new genus Lyroporidra is added. Six species and one variety of Lyropora have been described, and we know of no new forms. These species show that the only constant generic character is the thickened V or U shaped calcareous support. This at once shows the utter uselessness of Simpson's proposed names. The same carelessness and artificiality are exhibited in other cases. See synonymy under Ptiloporella, Ptiloporina, Fenestella, Polypora, etc.

Lyropora cinctura Hall. See Reteporidra cinctuta (Hall).

Lyropora divergens Ulrich.

1890. Lyropora divergens. Ulrich, Geol. Sur. Illinois, VIII, p. 584, pl. lviii, 4–4*b*, 4*d*.

1894. Lyropora divergens. Keyes, Missouri Geol. Sur., V, p. 28.

Chester: Chester, Illinois; Sloans Valley, Kentucky.

Lyropora ovalis Ulrich.

1890. Lyropora ovalis. Ulrich, Geol. Sur. Illinois, VIII, p. 585, pl. lviii, 5–5*b;* pl. lv, 8.

Chester: Grayson Springs and Litchfield, Kentucky.

Lyropora quincuncialis (Hall).

1857. Fenestella (Lyropora) quincuncialis. Hall, Proc. American Assoc. Adv. Sci., X, p. 180.

1890. Lyropora quincuncialis. Ulrich, Geol. Sur. Illinois, VIII, p. 583, pl. lviii, 3–3*d*, pl. lv, 7–7*c*.

1894. Lyropora quincuncialis. Keyes, Missouri Geol. Sur., V, p. 27.

1897. Lyroporella quincuncialis. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 69 (p. 516).

Chester: Chester, Illinois; Sloans Valley, Kentucky.

Lyropora ranosculum Ulrich.

1890. Lyropora ranosculum. Ulrich, Geol. Sur. Illinois, VIII, p. 581, pl. lviii, 1–1*c*.

1897. Lyropora ranosculum. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 66–68 (p. 515).

Chester: Chester and Kaskaskia, Illinois; Sloans Valley, Kentucky.

Lyropora retrorsa (Meek and Worthen).

1868. Fenestella (Lyropora) retrorsa. Meek and Worthen, Geol. Sur. Illinois, III, p. 504, pl. xv, 1.

Lyropora retrorsa (Meek and Worthen)—Continued.
1894. Lyropora retrorsa. Keyes, Missouri Geol. Sur., V, p. 27, pl. xxxiv, 4.
Burlington: Burlington, Iowa.

Lyropora subquadrans (Hall).
1857. Fenestella (Lyropora) subquadrans. Hall, Proc. American Assoc. Adv. Sci., X, p. 180.
1890. Lyropora subquadrans. Ulrich, Geol. Sur. Illinois, VIII, p. 582, pl. lviii, 2–2*e*.
1894. Lyropora subquadrans. Keyes, Missouri Geol. Sur., V, p. 27.
1897. Lyroporidra subquadrans. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. ix, 19.
Chester: Chester, Illinois; Sloans Valley, Kentucky.

Lyropora subquadrans-lyra (Hall).
1857. Fenestella (Lyropora) lyra. Hall, Proc. American Assoc. Adv. Sci., X, p. 179.
1890. Lyropora subquadrans var. lyra. Ulrich, Geol. Sur. Illinois, VIII, p. 583.
Chester: Kaskaskia and Chester, Illinois.

Lyroporella Simpson. See Lyropora Hall.

Lyroporella quincuncialis Simpson. See Lyropora quincuncialis (Hall).

Lyroporidra Simpson. See Lyropora Hall.

Lyroporidra subquadrans Simpson. See Lyropora subquadrans (Hall).

Lyroporina Simpson. See Lyropora Hall.

MEEKOPORA Ulrich. Genotype: Meekopora eximia Ulrich.
1890. Meekopora. Ulrich, Geol. Sur. Illinois, VIII, pp. 383, 482.
1889. Meekopora. (Ulrich, in press), Miller, North American Geol. Pal., p. 312.
1896. Meekopora. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 270.
1897. Meekapora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 538.

Meekopora ? aperta Ulrich.
1890. Meekopora ? aperta. Ulrich, Geol. Sur. Illinois, VIII, p. 485, pl. lxxvi, 1, 1*a*.
Keokuk: Kings Mountain, Kentucky.

Meekopora approximata Ulrich.
1890. Meekopora approximata. Ulrich, Geol. Sur. Illinois, VIII, p. 484, pl. lxxvii, 5.
1894. Meekopora approximata. Keyes, Missouri Geol. Sur., V, p. 16.
Chester: Chester, Illinois; Sloans Valley, Kentucky.

Meekopora clausa (Ulrich).
1884. Fistulipora ? clausa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 47, pl. iii, 4–4*b*.
1889. Meekopora clausa. Miller, North American Geol. Pal., fig. 494 (p. 313).
1890. Meekopora clausa. Ulrich, Geol. Sur. Illinois, VIII, p. 485, pl. lxxvi, 6, pl. lxxvii, 7–7*b*, fig. 5*e* (p. 315).
1894. Meekopora clausa. Keyes, Missouri Geol. Sur., V, p. 17.
1897. Meekapora clausa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 94 (in part) (p. 538).
Chester: Sloans Valley and Grayson Springs, Kentucky; Chester, Illinois.

Meekopora eximia Ulrich.
1890. Meekopora eximia. Ulrich, Geol. Sur. Illinois, VIII, p. 483, pl. lxxvii, 6–6*d*.

Meekopora eximia Ulrich—Continued.

1896. Meekopora eximia. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 444 (p. 270).

1897. Meekopora eximia. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 94 (in part) (p. 538).

Ste. Genevieve: Pella, Iowa.

Chester: Monroe County, Illinois; Caldwell County, Kentucky.

Meekopora foliacea (Hall).

1852. Ceramopora foliacea. Hall, Pal. New York, II, p. 170, pl. xlE, 3*a*–*c*.

Niagara: Lockport, New York.

Meekopora stellifera (Rominger).

1866. Fistulipora stellifera. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 120.

1890. Fistulipora stellifera. Ulrich, Geol. Sur. Illinois, VIII, p. 481, pl. xlvii, 2, 2*a*.

Hamilton: Near Alpena, Michigan.

MESOTRYPA Ulrich. Genotype: Diplotrypa infida Ulrich.

1879. Diplotrypa (in part). Nicholson, Paleozoic Tabulate Corals, p. 312.

1881. Diplotrypa (in part). Nicholson, Genus Monticulipora, pp. 101, 155.

1882. Diplotrypa (in part). Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 153.

1883. Diplotrypa (in part). Foord, Contr. Micro-Pal. Cambro-Sil., p. 13.

1890. Diplotrypa (in part). Ulrich, Geol. Sur. Illinois, VIII, p. 378.

1893. Mesotrypa. Ulrich, Geol. Minnesota, III, p. 257.

Mesotrypa discoidea Ulrich.

1893. Mesotrypa discoidea. Ulrich, Geol. Minnesota, III, p. 260, fig. 16.

Trenton: Goodhue County, Minnesota.

Mesotrypa infida (Ulrich).

1886. Diplotrypa infida. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 88.

1893. Mesotrypa infida. Ulrich, Geol. Minnesota, III, p. 258, pl. xvii, 1–8.

1896. Mesotrypa infida. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 453 (p. 273).

Trenton (Black River): Minneapolis, St. Paul, and Goodhue and Fillmore counties, Minnesota.

Mesotrypa milleri (Ulrich).

1882. Diplotrypa milleri. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 245, pl. xi, 2–2*c*.

Niagara: Osgood, Indiana.

Mesotrypa patella (Ulrich).

1890. Diplotrypa patella. Ulrich, Geol. Surv. Illinois, VIII, p. 458, pl. xxxiii, 2–2*c*.

1893. Mesotrypa patella. Ulrich, Geol. Minnesota, III, p. 257.

1894. Diplotrypa patella. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 184.

Cincinnati (Richmond): Oxford, Ohio; Richmond, Indiana.

Mesotrypa quebecensis (Ami).

1892. Diplotrypa Quebecensis. Ami, Canadian Record of Science, V, p. 101.

1893. Mesotrypa quebecensis. Ulrich, Geol. Minnesota, III, p. 259, fig. 15*e*, *f*.

Trenton: Quebec City, Quebec; Bridport, Vermont; Trenton Falls and Little Falls, New York; Frankfort, Burgin, and Danville, Kentucky; Decorah, Iowa.

Mesotrypa regularis (Foord).

1883. Diplotrypa regularis. Foord, Contr. Micro-Pal. Cambro-Sil., p. 13, pl. i, 3–3*c*.

1893. Mesotrypa regularis. Ulrich, Geol. Minnesota, III, p. 257.

Trenton: Ottawa City, Canada.

Mesotrypa ? rotunda Ulrich.

1893. Mesotrypa ? rotunda. Ulrich, Geol. Minnesota, III, p. 262, fig. 17.

Trenton: Hader, Minnesota.

Mesotrypa selkirkensis Whiteaves.

1897. Mesotrypa Selkirkensis. Whiteaves, Pal. Foss., III, p. 162, pl. xix, 1, 1*a*.

Trenton: East Selkirk, Canada.

Mesotrypa ? spinosa Ulrich.

1893. Mesotrypa ? spinosa. Ulrich, Geol. Minnesota, III, p. 259, pl. xvii, 9–12.

Trenton (Black River): Minneapolis and St. Paul, Minnesota.

Mesotrypa whiteavesi (Nicholson).

1875. Chætetes petropolitanus (in part). Nicholson, Quar. Jour. Geol. Soc. London, XXX, p. 510, pl. xxx, 5, 5*c*.

1875. Chætetes petropolitanus (in part). Nicholson, Pal. Ohio, II, p. 204, pl. xxi, 14–14*b*.

1875. Chætetes petropolitanus (in part). Nicholson, Geol. Mag., new ser., II, p. 175.

1876. Chætetes petropolitanus (in part). Nicholson, Ann. Mag. Nat. Hist., ser. 4, XVIII, p. 88, pl. v, 6*a* (not 6).

1879. Monticulipora (Diplotrypa) Whiteavesii. Nicholson, Paleozoic Tabulate Corals, p. 316, pl. xiii, 4–4*b* (not pl. xiv, 1).

1881. Monticulipora (Diplotrypa) Whiteavesii. Nicholson, Genus Monticulipora, p. 160, fig. 31.

1888. Monticulipora whiteavesii. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 169.

1893. Mesotrypa whiteavesii. Ulrich, Geol. Minnesota, III, fig. 15*g*, *h*.

1894. Monticulipora whiteavesii. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 187.

Trenton: Peterboro', Ontario.

MITOCLEMA Ulrich. Genotype: Mitoclema cinctosum Ulrich.

1882. Mitoclema. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 150.

1890. Mitoclema. Ulrich, Geol. Surv. Illinois, VIII, pp. 336, 369.

1893. Mitoclema. Ulrich, Geol. Minnesota, III, p. 122.

1897. Mitoclema. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 598.

Mitoclema cinctosum Ulrich.

1882. Mitoclema cinctosum. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 159, pl. vi, 7, 7*a*.

1889. Enallopora cinctosa. Miller, North American Geol. Pal., p. 301.

1890. Mitoclema cinctosum. Ulrich, Geol. Sur. Illinois, VIII, pl. liii, 8–8*b*.

1897. Mitoclema cinctosum. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 205, 206 (p. 599).

Trenton (Stones River): High Bridge, Kentucky; Murfreesboro, Tennessee.

Mitoclema ? mundulum Ulrich.

1890. Mitoclema ? mundulum. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 177, fig. 4*a*–*c*.

1893. Mitoclema ? mundulum. Ulrich, Geol. Minnesota, III, p. 123, pl. ii, 4–6.

Trenton: Cannon Falls, Minnesota.

MONOTRYPA Nicholson. Genotype: Chætetes undulatus Nicholson.

1879. Monotrypa. Nicholson, Paleozoic Tabulate Corals, p. 293.
1881. Monotrypa. Nicholson, Genus Monticulipora, pp. 102, 168.
1882. Monotrypa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 153.
1883. Monotrypa. Foord, Contr. Micro-Pal. Cambro-Sil., p. 14.
1886. Monotrypa. Waagen and Wentzel, Pal. Indica, Ser. XIII, 875, 876.
1887. Monotrypa. Hall and Simpson, Pal. New York, VI, p. xiii.
1889. Monotrypa. Miller, North American Geol. Pal., p. 196.
1890. Monotrypa. Ulrich, Geol. Surv. Illinois, VIII, p. 379.
1893. Monotrypa. Ulrich, Geol. Minnesota, III, p. 303.
1896. Monotrypa (in part). Zittel's Textb. Pal. (Engl. ed.), p. 104.
1897. Monotrypa. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 275.
1897. Monotrypa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 581.
1899. Monotrypa. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 136.
1887. Ptychonema. Hall and Simpson, Pal. New York, VI, pp. xiv, 14.
1889. Ptychonema. Miller, North American Geol. Pal., p. 201.
1897. Ptychonema. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 583.

Monotrypa ? amplectens Grabau.

1899. Monotrypa amplectens. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 137, fig. 22.
Hamilton: Averys Creek, Erie County, New York.

Monotrypa colliculata (Hall).

1879. Chætetes colliculatus. Hall, Thirty-second Ann. Rep. New York State Museum, p. 148 (reprint, 1880, p. 10).
1883. Chætetes colliculatus. Hall, Rep. State Geologist New York for the year 1882, pl. viii, 1–4.
1887. Chætetes colliculatus. Hall and Simpson, Pal. New York, VI, p. 11, pl. viii, 1–4.
1893. Monotrypa colliculata. Ulrich, Geol. Minnesota, III, p. 304.
Lower Helderberg: Schoharie, New York.

Monotrypa (Chætetes ?) cumulata Ulrich.

1893. Monotrypa (Chætetes ?) cumulata. Ulrich, Geol. Minnesota, III, p. 307, pl. xxvii, 26, 27.
Trenton: Goodhue County, Minnesota; Ottawa, Canada.

Monotrypa ? filiasa Ulrich. See Amplexopora filiosa (D'Orbigny).

Monotrypa fruticosa Grabau. See Chætetes fruticosus Hall (Hamilton).

Monotrypa ? furcata Grabau. See Chætetes furcatus Hall.

Monotrypa ? helderbergiæ (Hall).

1874. Chætetes Helderbergiæ. Hall, Twenty-sixth Ann. Rep. New York State Museum, p. 110.
1883. Chætetes Helderbergiæ. Hall, Rep. State Geologist New York for the year 1882, pl. ix 16, 17.
1887. Ptychonema Helderbergiæ. Hall and Simpson, Pal. New York, VI, p. 15, pl. ix, 16, 17.
1879. Favosites inexpectans. Hall, Thirty-second Ann. Rep. New York State Museum, p. 146 (reprint, 1880, p. 8).
Lower Helderberg: Clarksville and Schoharie, New York.

Monotrypa incerta. Ami. Not recognizable.

1892. Monotrypa incerta. Ami, Canadian Record of Science, V, p. 101.
Trenton: Quebec City, Quebec.

Monotrypa intabulata Ulrich.

1893. Monotrypa intabulata. Ulrich, Geol. Minnesota, III, p. 305, fig. 20.
Trenton: Goodhue and Fillmore counties, Minnesota.

Monotrypa irregularis Ulrich. See Leptotrypa ? irregularis (Ulrich).

Monotrypa magna Ulrich.

1893. Monotrypa magna. Ulrich, Geol. Minnesota, III, pl. 304, p. xxvii, 28, 29.
Trenton (Stones River): Dixon, Illinois; Mineral Point and Beloit, Wisconsin.

Monotrypa monticulata (Hall).

1879. Chætetes monticulatus. Hall, Thirty-second Ann. Rep. New York State Museum, p. 148 (reprint, 1880, p. 10).
1882. Monotrypa monticulata. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 256.
1883. Chætetes monticulatus. Hall, Rep. State Geologist New York for the year 1882, pl. viii, 5–7.
1887. Chætetes monticulatus. Hall and Simpson, Pal. New York, VI, p. 12, pl. viii, 5–7.
Lower Helderberg: Schoharie, New York.

Monotrypa nodosa Ulrich.

1882. Monticulipora ? Ortoni (not of Nicholson). Whitfield, Geol. Sur. Wisconsin, IV, p. 251, pl. xi, 7, 8.
1893. Monotrypa nodosa. Ulrich, Geol. Minnesota, III, p. 306.
Cincinnati (Richmond): Iron Ridge and Delafield, Wisconsin; Savannah, Illinois.

Monotrypa petasiformis Ulrich. See Amplexopora petasiformis (Nicholson).

Monotrypa ? proxima (Hall).

1879. Favosites proximus. Hall, Thirty-second Ann. Rep. New York State Museum, p. 147 (reprint, 1880, p. 9).
1883. Favosites proximus. Hall, Rep. State Geologist New York for the year 1882, pl. vii, 13–15.
1887. Favosites proximus. Hall and Simpson, Pal. New York, VI, p. 10, pl. vii, 13–15.
Lower Helderberg: Schoharie, New York.

Monotrypa rectimuralis Ulrich.

1890. Monotrypa rectimuralis. Ulrich, Geol. Sur. Illinois, VIII, p. 462, fig. 3*a* (p. 308), fig. 4*d* (p. 309), pl. xxxviii, 1–1*b*.
1896. Monotrypa rectimuralis. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 124.
1897. Monotrypa rectimuralis. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 151–153 (p. 581).
Trenton: Alexander County, Illinois.

Monotrypa sphærica (Hall).

1874. Chætetes spherica. Hall, Twenty-sixth Ann. Rep. New York State Museum, p. 111.
1883. Favosites sphericus. Hall, Rep. State Geologist New York for the year 1882, pl. vii, 1–12.

Monotrypa sphærica (Hall)—Continued.

1887. Favosites sphæricus. Hall and Simpson, Pal. New York, VI, p. 9, pl. vii, 1–12, pl. viii, 8.

1879. Favosites minimus. Hall, Thirty-second Ann. Rep. New York State Museum, p. 147 (reprint, 1880, p. 9).

Lower Helderberg: Clarksville, New York.

Monotrypa ? spinosula Hall and Simpson. See Monotrypa ? ? spinulosa Hall and Simpson.

Monotrypa ? ? spinulosa Hall and Simpson.

1883. Species undetermined. Hall, Rep. State Geologist New York for the year 1882, pl. xvi, 25.

1887. Monotrypa ? spinosula (in error for spinulosa). Hall and Simpson, Pal. New York, VI, p. 67, pl. xvi, 25.

Lower Helderberg: Schoharie, New York.

Monotrypa subglobosa Ulrich. See Monotrypa turbinata (James).

Monotrypa tabulata (Hall).

1876. Chætetes tabulatus. Hall, Illus. Devonian Foss., pl. xxxvii, 16, 19.

1879. Chætetes tabulatus. Hall, Thirty-second Ann. Rep. New York State Museum, p. 149 (reprint, 1880, p. 11).

1883. Chætetes ? tabulatus. Hall, Rep. State Geologist New York for the year 1882, pl. ix, 12–15.

1887. Chætetes (Ptychonema) tabulatus. Hall and Simpson, Pal. New York, VI, p. 14, pl. ix, 12–15.

1889. Ptychonema tabulatum. Miller, North American Geol. Pal., p. 201.

1893. Monotrypa tabulata. Ulrich, Geol. Minnesota, III, p. 304.

1897. Ptychonema tabulatum. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xvii, 9.

Lower Helderberg: Schoharie, New York.

Monotrypa turbinata (James).

1878. Chætetes turbinatum. James, Paleontologist, No. 2, p. 11.

1888. Monticulipora turbinata. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 161, pl. ii, 1*a–c*.

1893. Monticulipora turbinata. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XV, p. 158.

1879. Chætetes subglobosa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 129, pl. xii, 11–11*b*.

1882. Monotrypa subglobosa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 256.

Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

Monotrypa undulata (Nicholson).

1875. Chætetes undulatus. Nicholson, Geol. Mag., new ser., II, p. 176.

1875. Chætetes uudulatus. Nicholson, Pal. Province Ontario, pp. 10, 33, pl. iv, 1.

1879. Monticulipora (Monotrypa) undulata. Nicholson, Paleozoic Tabulate Corals, p. 321, pl. xiv, 3–3*b*, 4, 4*a*.

1881. Monticulipora (Monotrypa) undulata. Nicholson, Genus Monticulipora, p. 170, fig. 32 (not fig. 33 = M. undulata-hemispherica (J. F. James)).

1882. Monotrypa undulata. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 256.

1888. Monticulipora undulata. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 161.

1893. Monticulipora undulata. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XV, p. 157.

Trenton: Belleville and Peterboro, Ontario.

Monotrypa undulata-hemispherica (J. F. James).

1881. Monticulipora (Monotrypa) undulata (in part). Nicholson, Genus Monticulipora, p. 170, fig. 33, *A–C*.

1893. Monticulipora undulata var. hemispherica. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XV, p. 157, fig. 10*a–c*.

Cincinnati (Richmond ?): Toronto and Weston, Ontario.

MONOTRYPELLA Ulrich. Genotype: Monotrypella æqualis Ulrich.

1882. Monotrypella. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 153.

1883. Monotrypella. Foord, Contr. Micro-Pal. Cambro-Sil., p. 15.

1887. Monotrypella. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 171.

1887. Monotrypella. Hall and Simpson, Pal. New York, VI, p. xiii.

1889. Monotrypella. Miller, North American Geol. Pal., p. 196.

1890. Monotrypella. Ulrich, Geol. Sur. Illinois, VIII, pp. 377, 451.

1896. Monotrypella. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 278.

1897. Monotrypella. Simpson, Fourteenth Ann. Rep. State Geologist New York, for the year 1894, p. 581.

Monotrypella ? abrupta (Hall).

1879. Chætetes abruptus. Hall, Thirty-second Ann. Rep. New York State Museum, p. 148 (reprint, 1880, p. 10).

1883. Chætetes abruptus. Hall, Rep. State Geologist New York, for the year 1882, pl. ix, 9–11.

1887. Chætetes (Monotrypella) abruptus. Hall and Simpson, Pal. New York, VI, p. 13, pl. ix, 9–11.

Lower Helderberg: Schoharie, New York.

Monotrypella æqualis Ulrich.

1882. Monotrypella æqualis. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 247, pl. xi, 3–3*b*.

1890. Monotrypella æqualis. Ulrich, Geol. Sur. Illinois, VIII, fig. 3*b* (p. 308), fig. 4*a* (p. 309).

1894. Monticulipora æqualis. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 201.

1897. Monotrypella æqualis. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 154–156 (p. 582).

Cincinnati (Utica): Covington, Kentucky.

Monotrypella appressa Ulrich. See Eridotrypa appressa (Ulrich).

Monotrypella ? arbuscula (Hall).

1879. Chætetes fruticosus. Hall, Thirty-second Ann. Rep. New York State Museum, p. 148 (reprint, 1880, p. 10).

1883. Chætetes fruticosus. Hall, Rep. State Geologist New York, for the year 1882, pl. ix, 1–8.

1887. Chætetes (Monotrypella) arbusculus. Hall and Simpson, Pal. New York, VI, p. 12, pl. ix, 1–3 (? 4, 5), 6–8.

Lower Helderberg: Schoharie, New York.

Monotrypella briarea Ulrich. See Eridotrypa briareus (Nicholson).

Monotrypella confluens Foerste. See Homotrypa confluens (Foerste).

Monotrypella ? consimilis (Hall).

1876. Chætetes ? consimilis. Hall, Twenty-eighth Ann. Rep. New York State Mus. (documentary edition), pl. ix, 7–14.

1879. Chætetes consimilis. Hall, Twenty-eighth Ann. Rep. New York State Museum (Museum edition), p. 110, pl. ix, 7–14.

Monotrypella ? consimilis (Hall)—Continued.

1882. Chætetes consimilis. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 230, pl. viii, 7–14.

1882. Monotrypella consimilis. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 248.

Niagara: Waldron, Indiana.

Monotrypella crassimuralis Ulrich.

1890. Monotrypella crassimuralis. Ulrich, Geol. Sur. Illinois, VIII, p. 452, pl. xxxviii, 2–2*f*.

1894. Monticulipora crassimuralis. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 208.

Cincinnati (Richmond): Wilmington, Illinois.

Monotrypella ? densa (Hall).

1874. Trematopora densa. Hall, Twenty-sixth Ann. Rep. New York State Museum, p. 105.

1879. Trematopora (Chætetes) densa. Hall, Thirty-second Ann. Rep. New York State Museum, p. 150 (reprint, 1880, p. 12).

1883. Trematopora (Chætetes) densa. Hall, Rep. State Geologist New York, for the year 1882, pl. x, 11–13.

1887. Chætetes (Monotrypella) densus. Hall and Simpson, Pal. New York, VI, p. 14, pl. x, 11–13.

Lower Helderberg: Catskill Creek and Schoharie, New York.

Obs. This species may belong to the genus Eridotrypa.

Monotrypella multitabulata Ulrich. See Callopora multitabulata (Ulrich).

Monotrypella quadrata (Rominger).

1866. Chætetes quadratus. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 116.

1881. Monticulipora (Monotrypa) quadrata. Nicholson, Genus Monticulipora, p. 179, fig. 36.

1882. Monotrypella quadrata. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 248.

1888. Monticulipora quadrata. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 176.

1889. Monotrypella quadrata. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 36.

1894. Monticulipora quadrata. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 198.

1895. Monotrypella quadrata. Whiteaves, Pal. Foss., III, p. 116.

1874. Chætetes rhombicus. Nicholson, Quar. Jour. Geol. Soc. London, XXX, p. 507, pl. xxix, 11–11*b*.

1875. Chætetes rhombicus. Nicholson, Pal. Ohio, II, p. 201, pl. xxi, 12, 12*a*.

1876. Chætetes rhombicus. Nicholson, Ann. Mag. Nat. Hist., ser. 4, XVIII, p. 86, pl. v, 1–1*b*.

1878. Monticulipora rectangularis. Whitfield, Ann. Rep. Geol. Sur. Wisconsin for the year 1877, p. 70.

1882. Monticulipora rectangularis. Whitfield, Geol. Sur. Wisconsin, IV, p. 249, pl. xi, 11, 12.

1878. Monticulipora multituberculata. Whitfield, Ann. Rep. Geol. Sur. Wisconsin for the year 1877, p. 71.

1882. Monticulipora multituberculata. Whitfield, Geol. Sur. Wisconsin, IV, p. 250, pl. xi, 9, 10.

Cincinnati (Richmond): A common and characteristic species of the Richmond group in Ohio, Indiana, Illinois, Wisconsin, and Manitoba.

Monotrypella simplex Ulrich. See Eridotrypa appressa (Ulrich).

Monotrypella subquadrata Ulrich.

1882. Monotrypella subquadrata. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 249, pl. xi, 4–4*b*.

1894. Monticulipora quadrata var. subquadrata. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 199.

Cincinnati (Richmond): Osgood, Indiana; Blanchester, Hanover, and Oregonia, Ohio.

Monotrypella Trentonensis Foord. See Eridotrypa trentonensis (Nicholson).

Monotrypella ? unjiga Whiteaves.

1891. Monotrypella Unjiga. Whiteaves, Contr. Canadian Pal., I, p. 214, pl. xxx, 1–1*d*.

Devonian: Peace River, Vermilion Falls, Canada.

Obs. This species is probably an Eridotrypa.

MONTICULIPORA D'Orbigny. Genotype: Monticulipora mammulata D'Orbigny.

1850. Monticulipora. D'Orbigny, Prodr. de Pal., I, p. 25.

1860. Monticulipora. Milne-Edwards, Hist. Nat. des Corall, III., p. 272.

1860. Monticulipora. Eichwald, Lethæa Rossica, I, p. 492.

1872. Monticulipora. De Koninck, Nouv. Rech. Anim. Foss. Terr. Carb. Belgique, p. 141.

1879. Monticulipora. Nicholson, Paleozoic Tabulate Corals, p. 269.

1881. Monticulipora. Nicholson, Genus Monticulipora, p. 99.

1882. Monticulipora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, pp. 153, 232.

1883. Monticulipora. Foord, Contr. Micro-Pal. Cambro-Sil., p. 7.

1886. Monticulipora. Waagen and Wentzel, Pal. Indica, Ser. XIII, p. 874.

1888. Monticulipora. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 158.

1889. Monticulipora. Miller, North American Geol. Pal., p. 197.

1890. Monticulipora. Ulrich, Geol. Sur. Illinois, VIII, pp. 370, 407.

1893. Monticulipora. Ulrich, Geol. Minnesota, III, p. 217.

1893. Monticulipora. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XV, p. 155.

1896. Monticulipora. Zittel's Textb. Pal. (Engl. ed.), p. 103.

1896. Monticulipora. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 272.

1897. Monticulipora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 577.

1881. Peronopora (in part). Nicholson, Genus Monticulipora, p. 215.

Obs. By most writers the genus Monticulipora has been given a very wide acceptation. We have employed the term in its restricted sense as defined by Mr. Ulrich in his latest works, but most of the above citations refer to Monticulipora in a much wider sense.

Monticulipora æqualis J. F. James. See Monotrypella æqualis Ulrich.

Monticulipora affinis J. F. James. See Heterotrypa affinis (Ulrich).

Monticulipora (Fistulipora) alternata James and James. See Cœloclema alternatum (James).

Monticulipora andrewsii James and James. See Callopora andrewsi (Nicholson).

Monticulipora (Heterotrypa) Andrewsii Nicholson. See Callopora andrewsi (Nicholson).

Monticulipora (Constellaria) antheloidea James and James. See Stellipora antheloidea Hall.

Monticulipora approximatus Hall. See Callopora dalei (Milne-Edwards and Haime).

Monticulipora arborea Ulrich.

1893. Monticulipora arborea. Ulrich, Geol. Minnesota, III, p. 220, pl. xx, 1–9, 13, 14.

1896. Monticulipora arborea. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 449 (p. 272).

Trenton: Cannon Falls and St. Paul, Minnesota; Decorah, Iowa; Burgin and Frankfort, Kentucky.

Monticulipora arcolata J. F. James. See Aspidopora areolata Ulrich.

Monticulipora aspera J. F. James. See Spatiopora aspera Ulrich.

Monticulipora (Dekayia) aspera James and James. See Dekayia aspera Milne-Edwards and Haime.

Monticulipora asperula J. F. James. See Petigopora asperula Ulrich.

Monticulipora (Heterotrypa) Barrandi Nicholson. See Heterotrypa ? barrandei (Nicholson).

Monticulipora billingsi Foord.

1883. Monticulipora Billingsi. Foord, Contr. Micro-Pal. Cambro-Sil., p. 8, pl. i, 2–2*c*.

Trenton: Near Ottawa City, Canada.

Monticulipora briarea James and James. See Eridotrypa briareus (Nicholson).

Monticulipora (Monotrypa) briareus Nicholson. See Eridotrypa briareus (Nicholson).

Monticulipora calceola Miller and Dyer. See Leptotrypa calceola (Miller and Dyer).

Monticulipora (Monotrypa) calceola Nicholson. See Leptotrypa calceola (Miller and Dyer).

Monticulipora calycula James and James. See Aspidopora calycula (James).

Monticulipora (Diplotrypa) calycula Nicholson. See Aspidopora calycula (James).

Monticulipora? cannonensis Ulrich.

1893. Monticulipora ? cannonensis. Ulrich, Geol. Minnesota, III, p. 221, pl. xx, 10–12.

Trenton (Black River and Trenton): Cannon Falls, Minnesota.

Monticulipora cincinnatiensis (James).

1875. Chætetes cincinnatiensis. James, Catal. Sil. Foss. Cincinnati Group, p. 2.

1881. Monticulipora (Peronopora) Cincinnatiensis. Nicholson, Genus Monticulipora, p. 226, pl. ii, 6–6*c*.

1882. Monticulipora cincinnatiensis. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 239.

1888. Monticulipora cincinnatiensis. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 170.

1894. Monticulipora cincinnatiensis. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 188.

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

Monticulipora (Peronopora) Cincinnatiensis Nicholson. See Monticulipora cincinnatiensis (James).

Monticulipora circularis James. See Calloporella circularis (James).

Monticulipora (Heterotrypa) circularis James. See Calloporella circularis (James).

Monticulipora clavacoidea James and James. See Leptotrypa clavacoidea (James).

Monticulipora (Monotrypa) clavacoidea Nicholson. See Leptotrypa clavacoidea (James).

Monticulipora ?? cleavelandi James.

1882. Monticulipora (Heterotrypa ?) cleavelandi. James, Paleontologist, No. 6, p. 49, pl. i, 7.

1888. Monticulipora cleavelandi. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 15, pl. i, 4.

1895. Monticulipora cleavelandi. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 68.

Cincinnati (Richmond): Lynchburg, Ohio.

Obs. This species may belong to the genus Homotrypa, but the description given is not full enough to determine the genus with any degree of certainty.

Monticulipora ?? clintonensis James.

1882. Monticulipora (Heterotrypa) clintonensis. James, Paleontologist, No. 6, p. 45, pl. i, 9.

1888. Monticulipora clintonensis. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 20, pl. i, 1, 1*a*.

1895. Monticulipora clintonensis. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 73.

Cincinnati (Richmond): Clinton County, Ohio.

Obs. This is almost certainly a synonym for Heterotrypa subramosa (Ulrich).

Monticulipora communis James and James. See Callopora onealli-communis (James).

Monticulipora compressa J. F. James. See Peronopora compressa (Ulrich).

Monticulipora consimilis Ulrich. See Monticulipora lævis-consimilis Ulrich.

Monticulipora contexta J. F. James. See Homotrypella contexta Ulrich.

Monticulipora crassimuralis J. F. James. See Monotrypella crassimuralis Ulrich.

Monticulipora crustulata James and James. See Chætetes crustulatus James.

Monticulipora cumulata J. F. James. See Nicholsonella cumulata Ulrich.

Monticulipora curvata J. F. James. See Homotrypa curvata Ulrich.

Monticulipora dalei Milne-Edwards and Haime. See Callopora dalei (Milne-Edwards and Haime).

Monticulipora Dalii Hall (not Milne-Edwards and Haime). See Callopora ramosa (D'Orbigny).

Monticulipora Dalii White (not Milne-Edwards and Haime).

1875. Monticulipora Dalii. White, Wheeler's Geogr. Geol. Explor. Sur., IV, p. 66, pl. iv, 5.

Trenton: Silver Canyon, Pahranagat Range, Nevada.

Obs.—Further study of the original type specimens is needed to determine what they are, but it can be safely said that they do not belong where they were referred.

Monticulipora dawsoni James and James. See Homotrypa dawsoni (Nicholson).

Monticulipora (Heterotrypa) dawsoni Nicholson. See Homotrypa dawsoni (Nicholson).

Monticulipora delicatula James and James. See Bythopora delicatula (Nicholson).

Monticulipora discoidea James and James. See Amplexopora? discoidea (James).

Monticulipora (Monotrypa) discoidea Nicholson. See Amplexopora ? discoidea (James).

Monticulipora dubia J. F. James. See Diplotrypa? dubia Ulrich.

Monticulipora dychei James. See Leptotrypa? dychei (James).

Monticulipora (Monotrypa) dychei James. See Leptotrypa? dychei (James).

Monticulipora eccentrica James and James. See Aspidopora eccentrica (James).

Monticulipora (Heterotrypa ?) eccentrica James. See Aspidopora eccentrica (James).

Monticulipora elegans James and James. See Discotrypa elegans (Ulrich).

Monticulipora falesi James.

1884. Monticulipora falesi. James, Jour. Cincinnati Soc. Nat. Hist., VII, p. 138, pl. vii, 2–2*d*.

1888. Monticulipora falesi. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 168.

1894. Monticulipora falesi. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 185.

Trenton: Danville, Kentucky.

Obs.—The characters relied upon for making this a species are trivial; an investigation of the types may prove it a valid species.

Monticulipora filiasa D'Orbigny. See Amplexopora filiosa (D'Orbigny).

Monticulipora flabellaris J. F. James. See Homotrypa flabellaris Ulrich.

Monticulipora frondosa D'Orbigny. See Heterotrypa frondosa (D'Orbigny).

Monticulipora frondosa James and James (not D'Orbigny). See Peronopora decipiens (Rominger).

Monticulipora (Peronopora) frondosa Nicholson (not D'Orbigny). See Peronopora decipiens (Rominger).

Monticulipora fusiformis James and James (not Whitfield). See Lioclemella subfusiformis (James).

Monticulipora gelasinosa J. F. James. See Homotrypa gelasinosa Ulrich.

Monticulipora gracilis James and James. See Bythopora gracilis (Nicholson).

Monticulipora (Heterotrypa) gracilis Nicholson. See Bythopora gracilis (Nicholson).

Monticulipora grandis Ulrich. See Prasopora grandis (Ulrich).

Monticulipora (Fistulipora) granulifera J. F. James. See Homotrypella granulifera (Ulrich).

Monticulipora hamiltonense J. F. James. See Monticulipora ? winchelli Ulrich.

Monticulipora hospitalis James and James. See Prasopora ? hospitalis (Nicholson).

Monticulipora hospitalis var. lævis James and James. See Monticulipora lævis Ulrich.

Monticulipora hospitalis var. neglecta James and James. See Prasopora ? hospitalis (Nicholson).

Monticulipora imperfectum J. F. James. See Hemiphragma imperfectum (Ulrich).

Monticulipora implicatum J. F. James. See Batostoma implicatum (Nicholson).

Monticulipora (Heterotrypa) implicata Nicholson. See Batostoma implicatum (Nicholson).

Monticulipora incompta Ulrich.

1893. Monticulipora incompta. Ulrich, Geol. Minnesota, III, p. 219, pl. xv, 9–12.

Trenton (Black River): Minneapolis, Minnesota.

Monticulipora inflecta J. F. James. See Heterotrypa inflecta Ulrich.

Monticulipora irregularis James and James. See Leptotrypa ? irregularis (Ulrich).

Monticulipora (Monotrypa) irregularis Nicholson. See Leptotrypa ? irregularis (Ulrich).

Monticulipora Jamesi Nicholson. See Batostoma jamesi (Nicholson).

Monticulipora (Heterotrypa) Jamesi Nicholson. See Batostoma jamesi (Nicholson).

Monticulipora ?? kentuckyensis James.

1883. Monticulipora kentuckensis. James, Paleontologist, No. 7, p. 57, pl. ii, 1–1*b*.

1888. Monticulipora kentuckensis. James and James, Jour. Cincinnati Soc. Nat. Hist., X, p. 180, pl. ii, 6*a–d*.

1894. Monticulipora kentuckensis. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 203.

Cincinnati (?): Paris, Kentucky.

Obs.—The genus to which this species belongs can not be determined from the descriptions given.

Monticulipora lævis Ulrich.

1882. Monticulipora lævis. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 236, pl. x, 1–1*b*.

1888. Monticulipora hospitalis var. lævis. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 27.

1895. Monticulipora lævis. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 85.

Cincinnati (Richmond): Oxford, Ohio.

Monticulipora lævis-consimilis Ulrich.

1882. Monticulipora consimilis. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 238, pl. x, 2.

1894. Monticulipora consimilis. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 189.

Cincinnati (Richmond): Oxford, Ohio.

Monticulipora lamellosa Ulrich.

1890. Monticulipora lamellosa. Ulrich, Geol. Sur. Illinois, VIII, p. 408, pl. xxxii, 4–4*b*.

1895. Monticulipora lamellosa. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 83.

Cincinnati (Richmond): Wilmington, Illinois.

Monticulipora lens James and James (not Nebulipora lens McCoy). See Calloporella circularis (James).

Monticulipora (Dekayia) maculata J. F. James. See Dekayia maculata James.

Monticulipora mammillosa Simpson. See Monticulipora molesta Nicholson.

Monticulipora mammulata James and James (not D'Orbigny). See Heterotrypa frondosa (D'Orbigny).

Monticulipora (Heterotrypa) mammulata Nicholson (not D'Orbigny). See Heterotrypa frondosa (D'Orbigny).

Monticulipora mammulata D'Orbigny.

1850. Monticulipora mammulata. D'Orbigny, Prodr. de Pal., I, p. 25.

1851. Chætetes mammulatus. Milne-Edwards and Haime, Pol. Foss. Terr. Pal., p. 267, pl. xix, 1, 1*a*.

1854. Monticulipora mammulata. Milne-Edwards and Haime, British Foss. Corals, p. 265.

1860. Monticulipora mammulata. Milne-Edwards, Hist. Nat. des Corall., III, p. 276.

1882. Monticulipora mammulata. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 234.

1883. Monticulipora mammulata. Hall, Twelfth Ann. Rep. Indiana Geol. Nat. Hist., p. 250, pl. xi, 1.

Not Monticulipora mammulata. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 16; J. F. James, ibid., XVIII, p. 69 (=Heterotrypa frondosa (D'Orbigny)).

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity; Maury County, Tennessee.

Monticulipora mammulata var. molesta Ulrich. See Monticulipora molesta Nicholson.

Monticulipora meeki James and James. See Bythopora meeki (James).

Monticulipora (Chætetes) meeki James. See Bythopora meeki (James).

Monticulipora (Fistulipora) milfordensis James and James. See Ceramoporella granulosa-milfordensis (James).

Monticulipora molesta Nicholson.

1881. Monticulipora (Peronopora) molesta. Nicholson, Genus Monticulipora, p. 224, pl. vi, 2–2*d*.

1882. Monticulipora mammulata var. molesta. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 236.

1889. Monticulipora mammulata. Nicholson, Manual Pal., p. 355.

1895. Monticulipora molesta. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 68.

1897. Monticulipora mammillosa (in error). Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 577, pl. xvii, 1–3.

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity; Maury County, Tennessee.

Monticulipora (Heterotrypa) moniliformis Nicholson. See Heterotrypa ? moniliformis (Nicholson).

Monticulipora ? monticula White.

1876. Monticulipora monticula. White, Proc. Acad. Nat. Sci. Philadelphia, p. 27.

Hamilton: Iowa City and Buffalo, Iowa.

Monticulipora multituberculata Whitfield. See Monotrypella quadrata (Rominger).

Monticulipora newberryi James and James. See Aspidopora newberryi (Nicholson).

Monticulipora (Prasopora) Newberryi Nicholson. See Aspidopora newberryi (Nicholson).

Monticulipora newportensis James and James. See Atactoporella newportensis Ulrich.

Monticulipora (Fistulipora) nicholsoni James and James. See Chiloporella nicholsoni (James).

Monticulipora nodulosa James and James. See Callopora nodulosa (Nicholson).

Monticulipora (Heterotrypa) nodulosa Nicholson. See Callopora nodulosa (Nicholson).

Monticulipora ohioensis James. See Dekayella ulrichi-robusta Foord.

Monticulipora o'nealli James and James. See Callopora onealli (James).

Monticulipora (Heterotrypa) O'Nealli Nicholson (not of James). See Callopora onealli-sigillarioides (Nicholson).

Monticulipora (Heterotrypa) o'nealli ? var. communis James. See Callopora onealli-communis (James).

Monticulipora ortoni James and James. See Atactoporella ortoni (Nicholson).

Monticulipora (Peronopora ?) Ortoni Nicholson. See Atactoporella ortoni (Nicholson).

Monticulipora ? Ortoni Whitfield (not of Nicholson). See Monotrypa nodosa Ulrich.

Monticulipora (Fistulipora) oweni James and James. See Cœloclema oweni (James).

Monticulipora papillata Milne-Edwards, James and James (not Nebulipora papillata McCoy).

1860. Monticulipora papillata. Milne-Edwards, Hist. Nat. des Corall., III, p. 275.

1888. Monticulipora papillata. James & James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 23.

1895. Monticulipora papillata. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 81.

Obs. The form referred as above can not be identified from the description; probably a variety of forms was included.

Monticulipora parasitica Ulrich.

1882. Monticulipora parasitica. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 238, pl. x, 3, 3*a*.

1895. Monticulipora parasitica. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 81.

Cincinnati (Richmond): Oxford and Hanover, Ohio; Richmond, Indiana; Wilmington and Savannah, Illinois.

Monticulipora parasitica-plana Ulrich.

1889. Monticulipora parasitica var. plana. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 29, pl. viii, 3–3*d*.

1895. Monticulipora parasitica var. plana. Whiteaves, Pal. Foss., III, p. 115.

Cincinnati (Richmond): Stony Mountain, Manitoba.

Monticulipora (Constellaria) parva J. F. James. See Constellaria parva (Ulrich).

Monticulipora pavonia Milne-Edwards. See Escharopora pavonia (D'Orbigny).

Monticulipora (Monotrypa) pavonia Nicholson. See Escharopora pavonia (D'Orbigny).

Monticulipora (Dekayia) pelliculata J. F. James. See Dekayia pelliculata Ulrich.

Monticulipora petasiformis James and James. See Amplexopora petasiformis (Nicholson).

Monticulipora (Monotrypa) petasiformis Nicholson. See Amplexopora petasiformis (Nicholson).

Monticulipora petasiformis var. welchi James and James. See Amplexopora petasiformis-welchi (James).

Monticulipora petechialis James and James. See Petigopora petechialis (Nicholson).

Monticulipora (Constellaria) polystomella James and James (not Nicholson). See (in part) Constellaria constellata (Van Cleve) Dana and (in part) Constellaria polystomella Nicholson.

Monticulipora prolifica J. F. James. See Heterotrypa subramosa-prolifica Ulrich.

Monticulipora punctata Whitfield. See Constellaria punctata (Whitfield).

Monticulipora pustulosa J. F. James. See Amplexopora pustulosa Ulrich.

Monticulipora quadrata James and James. See Monotrypella quadrata (Rominger).

Monticulipora (Monotrypa) quadrata Nicholson. See Monotrypella quadrata (Rominger).

Monticulipora quadrata var. subquadrata J. F. James. See Monotrypella subquadrata Ulrich.

Monticulipora ramosa D'Orbigny. See Callopora ramosa (D'Orbigny).

Monticulipora (Heterotrypa) ramosa Nicholson. See Callopora ramosa (D'Orbigny).

Monticulipora ramosa var. dalei James and James. See Callopora dalei (Milne-Edwards and Haime).

Monticulipora (Heterotrypa) ramosa var. dalei Nicholson. See Callopora dalei (Milne-Edwards and Haime).

Monticulipora ramosa var. rugosa James and James. See Callopora rugosa (Milne-Edwards and Haime).

Monticulipora (Heterotrypa) ramosa var. rugosa Nicholson. See Callopora rugosa (Milne-Edwards and Haime).

Monticulipora rectangularis Whitfield. See Monotrypella quadrata (Rominger).

Monticulipora rugosa Milne-Edwards and Haime. See Callopora rugosa (Milne-Edwards and Haime).

Monticulipora (Fistulipora) rustica J. F. James. See Homotrypella rustica Ulrich.

Monticulipora selwynii J. F. James (not Nicholson). See Prasopora simulatrix Ulrich.

Monticulipora (Prasopora) Selwynii Nicholson. See Prasopora selwyni (Nicholson).

Monticulipora (Prasopora) Selwynii var. hospitalis Nicholson. See Prasopora ? hospitalis (Nicholson).

Monticulipora septosa James and James. See Amplexopora septosa (Ulrich).

Monticulipora simulatrix J. F. James. See Eridotrypa simulatrix (Ulrich).

Monticulipora singularis J. F. James. See Heterotrypa singularis (Ulrich).

Monticulipora stidhami J. F. James. See Leptotrypa stidhami Ulrich.

Monticulipora subcylindrica James. See Amplexopora filiosa (D'Orbigny).

Monticulipora (? Monotrypa) subfusiformis James. See Lioclemella subfusiformis (James).

Monticulipora subpulchella James and James. See Heterotrypa subpulchella (Nicholson).

Monticulipora (Heterotrypa) subpulchella Nicholson. See Heterotrypa subpulchella (Nicholson).

Monticulipora (Heterotrypa) Trentonensis Nicholson. See Eridotrypa trentonensis (Nicholson).

Monticulipora tuberculata James and James. See Spatiopora tuberculata (Milne-Edwards and Haime).

Monticulipora (Monotrypa) tuberculata Nicholson (not Milne-Edwards and Haime). See Spatiopora corticans (Nicholson).

Monticulipora turbinata James and James. See Monotrypa turbinata (James).

Monticulipora ulrichi James and James. See Dekayella ulrichi (Nicholson).

Monticulipora (Heterotrypa) Ulrichii Nicholson. See Dekayella ulrichi (Nicholson).

Monticulipora undulata James and James. See Monotrypa undulata (Nicholson).

Monticulipora (Monotrypa) undulata Nicholson. See Monotrypa undulata (Nicholson).

Monticulipora undulata var. hemispherica J. F. James. See Monotrypa undulata-hemispherica (J. F. James).

Monticulipora uniformis J. F. James. See Peronopora compressa Ulrich.

Monticulipora varians James and James. See Batostoma varians (James).

Monticulipora (Chætetes) varians James. See Batostoma varians (James).

Monticulipora vaupeli James and James. See Nicholsonella vaupeli (Ulrich).

Monticulipora (Fistulipora) venusta James and James. See Crepipora venusta (Ulrich).

Monticulipora verrucosa J. F. James. See Calloporella ? nodulosa (Ulrich).

Monticulipora (Monotrypa) welchi James. See Amplexopora petasiformis-welchi (James).

Monticulipora westoni Foord.

1883. Monticulipora Westoni. Foord, Contributions Micro-Pal. Cambro-Sil., p. 7, pl. i, 1–1*b*.

Trenton: Ottawa City, Canada.

Monticulipora wetherbyi Ulrich.

1882 Monticulipora wetherbyi. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 239, pl. x, 4–4*b*.

1886. Monticulipora wetherbyi. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 129.

1888. Monticulipora wetherbyi. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 24.

1889. Monticulipora wetherbyi. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 30.

Monticulipora wetherbyi Ulrich—Continued.

1893. Monticulipora wetherbyi. Ulrich, Geol. Minnesota, III, p. 218, pl. xv, 7, 8.

1897. Monticulipora Wetherbyi. Whiteaves, Pal. Foss., III, p. 162.

Trenton (Stones River): High Bridge, Kentucky; Minneapolis, Minnesota; St. Andrews, Manitoba.

Monticulipora wetherbyi var. asperula James and James. See Petigopora asperula Ulrich.

Monticulipora whiteavesii James and James. See Mesotrypa whiteavesi (Nicholson).

Monticulipora (Diplotrypa) Whiteavesii Nicholson. See (in part) Prasopora selwyni (Nicholson), (in part) Prasopora simulatrix-orientalis Ulrich, (in part) Mesotrypa whiteavesi (Nicholson).

Monticulipora whitfieldi James and James. See Hemiphragma whitfieldi (James).

Monticulipora (Chætetes) whitfieldi James. See Hemiphragma whitfieldi (James).

Monticulipora wilmingtonense J. F. James. See Lioclema ? wilmingtonense Ulrich.

Monticulipora ? winchelli Ulrich.

1890. Monticulipora winchelli. Ulrich, Geol. Sur. Illinois, VIII, p. 408, pl. xlv, 6, 6*a*.

1895. Monticulipora hamiltonense. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 87.

Hamilton: Near Alpena, Michigan.

Monticulipora ?? winchelli James.

1882. Monticulipora (Heterotrypa) winchelli. James, Paleontologist, No. 6, p. 48.

1883. Monticulipora winchelli. James, Paleontologist, No. 7, pl. i, 5.

1895. Monticulipora winchelli. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 87.

Cincinnati (Richmond): Near Lynchburg, Highland County, Ohio.

Obs. Species probably valid, but generic position has not yet been determined.

Monticulipora (Heterotrypa) winchelli James. See Monticulipora ?? winchelli James.

Monticulipora ?? wortheni James.

1882. Monticulipora (Monotrypa) wortheni. James, Paleontologist, No. 6, p. 50, pl. i, 2.

1894. Monticulipora wortheni. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 207.

Cincinnati (Richmond): Lynchburg, Highland County, Ohio.

Obs. The description given is insufficient to decide the generic position.

Nebulipora McCoy. Genotype: Nebulipora papillata McCoy.

1850. Nebulipora. McCoy, Ann. Mag. Nat. Hist., ser. 2, VI, p. 282.

1852. Nebulipora. McCoy, British Pal. Foss., p. 22.

1882. Nebulipora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 155.

Obs. Nothing has been added to McCoy's original descriptions. The genus, apparently monticuliporoid in its structure, not having been characterized with the precision necessary for modern purposes, has not been used by recent writers.

NEMATAXIS Hall. Genotype: Nemataxis fibrosus Hall.

1886. Nemataxis. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, explanation pl. xxv.
1887. Nemataxis. Hall and Simpson, Pal. New York, VI, p. xv.
1889. Nemataxis. Miller, North American Geol. Pal., p. 313.
1897. Nemataxis. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 552.

Nemataxis fibrosus Hall.

1886. Nemataxis fibrosus. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxv, 30–36.
1887. Nemataxis fibrosus. Hall and Simpson, Pal. New York, VI, p. 74, pl. xxv, 30–36.
1897. Nemataxis fibrosus. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xvi, 15–18.
Upper Helderberg: Ontario, Canada.

Nemataxis ? simplex Hall and Simpson.

1887. Nemataxis simplex. Hall and Simpson, Pal. New York, VI, p. 193, pl. lxvi, 17–19.
Hamilton: Darien Center, New York.

NEMATOPORA Ulrich. Genotype: Nematopora ovalis Ulrich.

1888. Nematopora. Ulrich, American Geologist, I, p. 234.
1889. Nematopora. Miller, North American Geol. Pal., p. 313.
1890. Nematopora. Ulrich, Geol. Sur. Illinois, VIII, pp. 401, 644.
1893. Nematopora. Ulrich, Geol. Minnesota, III, p. 204.
1896. Nematopora. Ulrich, Zittel's Textb. Pal. (Eng. ed.), p. 281.
1897. Nematopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 553.

Nematopora alternata Ulrich.

1890. Nematopora alternata. Ulrich, Geol. Sur. Illinois, VIII, p. 646, pl. xxix, 8, 8*a*.
Trenton: Alexander County, Illinois.

Nematopora conferta Ulrich.

1890. Nematopora conferta. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 198, fig. 22.
1893. Nematopora conferta. Ulrich, Geol. Minnesota, III, p. 206, pl. iii, 21–23.
Trenton: Cannon Falls, Minnesota.

Nematopora delicatula Ulrich.

1890. Nematopora delicatula. Ulrich, Geol. Sur. Illinois, VIII, p. 646, pl. xxix, 11–11*b*.
1893. Nematopora delicatula. Ulrich, Geol. Minnesota, III, p. 206, pl. iii, 26, 27.
1897. Nematopora delicatula. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 124, 125 (p. 553).
Trenton: Alexander County, Illinois; Cannon Falls, Minnesota.

Nematopora formosa (Billings).

1866. Helopora formosa. Billings, Catal. Sil. Foss. Anticosti, p. 37.
1890. Nematopora formosa. Ulrich, Geol. Sur. Illinois, VIII, p. 645.
Anticosti: Anticosti Island.
Obs. See also Helopora ? concava Billings.

Nematopora fragilis Ulrich.

1890. Nematopora fragilis. Ulrich, Geol. Sur. Illinois, VIII, p. 646, pl. xxix, 10–10*c*.
Trenton: Alexander County, Illinois.

Nematopora granosa Ulrich.

1890. Nematopora granosa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 196, fig. 20.
1893. Nematopora granosa. Ulrich, Geol. Minnesota, III, p. 205, pl. iii, 17–20.
Trenton: Cannon Falls, Minnesota.

Nematopora lineata (Billings).

1866. Helopora lineata. Billings, Catal. Sil. Foss. Anticosti, p. 36.
1890. Nematopora lineata. Ulrich, Geol. Sur. Illinois, VIII, p. 646, pl. xxix, 7–7*e*.
Anticosti: Anticosti Island.

Nematopora ? lineopora (Billings).

1866. Helopora lineopora. Billings, Catal. Sil. Foss. Anticosti, p. 38.
1890. Nematopora ? lineopora. Ulrich, Geol. Sur. Illinois, VIII, p. 645.
Anticosti: Anticosti Island.

Nematopora macropora (Hall).

1883. Trematopora ? (Trachypora ?) macropora. Hall, Trans. Albany Institute, X, p. 60 (abstract, 1879, p. 4).
1882. Trematopora ? (Trachypora ?) macropora. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 236.
Niagara: Waldron, Indiana.

Nematopora minuta (Hall).

1876. Trematopora ? (Trachypora ?) minuta. Hall, Twenty-eighth Ann. Rep. New York State Museum (documentary edition), pl. xi, 8.
1879. Trematopora minuta. Hall, Twenty-eighth Ann. Rep. New York State Museum (Museum edition), p. 113, pl. xi, 8.
1882. Trematopora minuta. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 234, pl. x, 8.
1890. Nematopora minuta. Ulrich, Geol. Sur. Illinois, VIII, p. 645.
Niagara: Waldron, Indiana.

Nematopora ovalis Ulrich.

1890. Nematopora ovalis. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 197, fig. 21.
1893. Nematopora ovalis. Ulrich, Geol. Minnesota, III, p. 204, pl. iii, 24, 25.
1890. Nematopora quadrata. Ulrich, Geol. Sur. Illinois, VIII, p. 644, pl. xxix, 12–12*c*.
1897. Nematopora quadrata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 124, 125 (p. 553).
Trenton; Cannon Falls, Minnesota; Montreal, Canada; Trenton Falls, New York.

Nematopora quadrata Ulrich. See Nematopora ovalis Ulrich.

Nematopora raripora (Hall).

1852. Stictopora raripora. Hall, Pal. New York, II, p. 46, pl. xviii, 5*a*–*c*.
1874. Ptilodictya ? raripora. Nicholson and Hinde, Canadian Jour., new ser., XIV, p. 142.
1875. Ptilodictya ? raripora. Nicholson, Pal. Province Ontario, p. 45, figs. 19, 4, 4*a*.
Clinton: Flamborough Head, Ontario.
Niagara: Lockport, New York.

Nematopora retrorsa Ulrich.

1890. Nematopora retrorsa. Ulrich, Geol. Sur. Illinois, VIII, p. 645, pl. xxix, 9–9*b*.
Trenton: Alexander county, Illinois.

Nematopora striatopora (Billings).
1866. Helopora striatopora. Billings, Catal. Sil. Foss. Anticosti, p. 39.
1890. Nematopora striatopora. Ulrich, Geol. Sur. Illinois, VIII, p. 645.
Anticosti: Anticosti Island.

Nematopora strigosa (Billings).
1866. Helopora strigosa. Billings, Catal. Sil. Foss. Anticosti, p. 37.
1890. Nematopora strigosa. Ulrich, Geol. Sur. Illinois, VIII, p. 645.
Anticosti: Anticosti Island.

NICHOLSONELLA Ulrich. Genotype: Nicholsonella ponderosa Ulrich.
1890. Nicholsonella. Ulrich, Geol. Sur. Illinois, VIII, pp. 374, 421.
1889. Nicholsonella. (Ulrich, in press), Miller, North American Geol. Pal., p. 313.
1893. Nicholsonella. Ulrich, Geol. Minnesota, III, p. 313.
1896. Nicholsonella. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 276.
1897. Nicholsonella. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 590.

Nicholsonella cumulata Ulrich.
1890. Nicholsonella cumulata. Ulrich, Geol. Sur. Illinois, VIII, p. 423, pl. xxxiii, 6–6*c*.
1895. Monticulipora cumulata. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 74.
1897. Nicholsonella cumulata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 183–186 (p. 590).
Cincinnati (Richmond): Wilmington, Illinois.

Nicholsonella laminata Ulrich.
1893. Nicholsonella laminata. Ulrich, Geol. Minnesota, III, p. 315, pl. xxi, 15–19, 21.
Trenton (Black River): Minneapolis and St. Paul, Minnesota.

Nicholsonella ponderosa Ulrich.
1890. Nicholsonella ponderosa. Ulrich, Geol. Sur. Illinois, VIII, p. 422, pl. xxxiv, 5–5*d*.
1893. Nicholsonella ponderosa (?). Ulrich, Geol. Minnesota, III, p. 316, pl. xxi, 13, 14, 20, 22.
Trenton (Stones River): Dixon, Illinois; Minneapolis, Minnesota.

Nicholsonella pulchra Ulrich.
1893. Nicholsonella pulchra. Ulrich, Geol. Minnesota, III, p. 314, pl. xxi, 8–12.
1896. Nicholsonella pulchra. Ulrich, Zittel's Textb., Pal. (Eng. ed.), fig. 462 (p. 276).
Trenton (Stones River): Murfreesboro, Tennessee.

Nicholsonella vaupeli (Ulrich).
1883. Heterotrypa vaupeli. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 85, pl. i, 2–2*b*.
1888. Monticulipora vaupeli. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 19.
1890. Nicholsonella vaupeli. Ulrich, Geol. Sur. Illinois, VIII, p. 421.
1895. Monticulipora vaupeli. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 71.
Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

Nicholsonia Waagen and Wentzel. See Escharopora Hall.

Nicholsonia Davis (not Waagen and Wentzel). See Hederella Hall.

Nicholsonia adnata Davis. See Hederella adnata (Davis).

Nicholsonia angulata Davis. Not a fossil.

1885. Nicholsonia angulata. Davis, Kentucky Foss. Corals, Part II, pl. lxxx, 16.
Hamilton: Falls of the Ohio.

Nicholsonia canadensis Davis. See Hederella canadensis (Nicholson).

Nicholsonia pavonica Waagen and Wentzel. See Escharopora pavonia (D'Orbigny).

Odontotrypa Hall. See Buskopora Ulrich.

Odontotrypa alveata Simpson. See Buskopora bistriata (Hall).

Omniretepora D'Orbigny. Not recognized. (See Geol. Sur. Illinois, VIII, p. 687).

1850. Omniretepora D'Orbigny, Prodr. de Pal., I, p. 45.

Omniretepora anastomosa D'Orbigny. Not recognizable.

1850. Omniretepora anastomosa. D'Orbigny, Prodr. de Pal., I, p. 45.
"Etats-Unis, failles de l'Ohio."

ORBIPORA Eichwald. Genotype: Orbitulites distinctus Eichwald.

1829. Orbitulites. Eichwald, Zool. Spec., I, p. 179. (Name was preoccupied.)
1860. Orbitulites. Milne-Edwards, Hist. Nat. des Corall., III, p. 271.
1856. Orbipora. Eichwald, Bull. de la Soc. des Natural. de Moscou, XXIX, p. 92.
1860. Orbipora. Eichwald, Lethæa Rossica, I, p. 484.
1877. Orbipora. Dybowsky, Die Chætetiden der Ostbaltischen Silur-Form., p. 57.
1881. Orbipora. Nicholson, Genus Monticulipora, p. 24.
1886. Orbipora. Waagen and Wentzel, Pal. Indica, Ser. XIII, pp. 874, 876.

Obs. The validity and systematic position of this genus are still in question. Of Eichwald's original species, as identified by Dybowski, the Orbipora distincta is closely related to Chætetes discoideus Nicholson, which we have doubtfully referred to Amplexopora, as it has certain characters which may require its removal to the Heterotrypidæ; the Orbipora panderi is very different, being an unequivocal Hemiphragma.

ORTHOPORA Hall. Genotype: Trematopora regularis Hall.

1886. Orthopora. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, explanation pl. xxv.
1887. Orthopora. Hall and Simpson, Pal. New York, VI, pp. xiv, 16.
1889. Orthopora. Miller, North American Geol. Pal., p. 313.

Obs. Simpson appears to give up Orthopora by referring the genotype to Rhombopora (Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xix, 10, 11); but until the type species is better known the genus had best be allowed to stand.

Orthopora bispinulata (Hall).

1883. Callopora bispinulata. Hall, Trans. Albany Institute, X, p. 182 (abstract, 1881, p. 182).
1884. Callopora bispinulata. Hall, Rep. State Geologist New York for the year 1883, p. 14.
1887. Trematopora (Orthopora) bispinulata. Hall and Simpson, Pal. New York, VI, p. 182, pl. lv, 27–30, pl. lvi, 16–18.
1889. Acanthoclema bispinulatum. Miller, North American Geol. Pal., p. 291.
1889. Orthopora bispinulata. Miller, North American Geol. Pal., p. 313.
Hamilton: Moscow, New York.

Orthopora canaliculata (Hall).

1879. Trematopora canaliculata. Hall, Thirty-second Ann. Rep. New York State Museum, p. 151 (reprint, 1880, p. 13).

Orthopora canaliculata (Hall)—Continued.

1883. Trematopora ? canaliculata. Hall, Rep. State Geologist New York for the year 1882, pl. xi, 12.

1887. Trematopora (Orthopora) canaliculata. Hall and Simpson, Pal. New York, VI, p. 17, pl. xi, 12, pl. xxiii, 9.

Lower Helderberg: Clarksville, New York.

Orthopora carinata (Hall and Simpson).

1887. Trematopora (Orthopora) carinata. Hall and Simpson, Pal. New York, VI, p. 179, pl. lv, 2, pl. lvi, 3.

1898. Trematopora carinata. Whiteaves, Contr. Canadian Pal., 1, p. 379.

Hamilton: West Williams, Ontario.

Orthopora elongata (Hall and Simpson).

1887. Trematopora (Orthopora) elongata. Hall and Simpson, Pal. New York, VI, p. 183, pl. lv, 11, pl. lvi, 15.

Hamilton: Near Lake Canandaigua and Lake Owasco, New York.

Obs. Orthopora transversa and Orthopora interplana appear to be synonyms of this species.

Orthopora granifera (Hall and Simpson).

1887. Trematopora (Orthopora) granifera. Hall and Simpson, Pal. New York, VI, p. 186.

Hamilton: Owasco Lake, New York.

Orthopora granilinea (Hall and Simpson).

1887. Trematopora (Orthopora) granilinea. Hall and Simpson, Pal. New York, VI, pl. xxiii, 2.

Lower Helderberg: Clarksville, New York.

Orthopora hexagona (Hall and Simpson).

1887. Trematopora (Orthopora) hexagona. Hall and Simpson, Pal. New York, VI, p. 178, pl. lv, 8, pl. lvi, 2.

1899. Rhombopora hexagona. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 164, fig. 53.

1897. Rhombopora transversa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xix, 12, 13.

Hamilton: Eighteen-Mile Creek, shore of Lake Erie, New York.

Orthopora immersa (Hall and Simpson.)

1887. Trematopora (Orthopora) immersa. Hall and Simpson, Pal. New York, VI, p. 185, pl. lvi, 11.

1899. Rhombopora immersa. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 166, fig. 57.

Hamilton: Darien Center and West Hamburg, New York.

Orthopora interplana (Hall and Simpson).

1887. Trematopora (Orthopora) interplana. Hall and Simpson, Pal. New York, VI, p. 186, pl. lvi, 12.

Hamilton: Near Lake Canandaigua, New York.

Obs. See remark on Orthopora elongata.

Orthopora lineata (Hall and Simpson).

1887. Trematopora (Orthopora) lineata. Hall and Simpson, Pal. New York, VI, p. 181, pl. lv, 3-6, pl. lvi, 10.

1899. Rhombopora lineata. Grabau, Bull. Buffalo Soc. Nat. Sci., VI., p. 165, fig. 56.

Hamilton: Darien Center and West Hamburg, New York.

Orthopora nodosa (Hall and Simpson).

1887. Trematopora (Orthopora) nodosa. Hall and Simpson, Pal. New York, VI, pl. xxiii, 10.
Lower Helderberg: Clarksville, New York.

Orthopora orbipora (Hall).

1883. Trematopora orbipora. Hall, Trans. Albany Institute, X, p. 181 (abstract, 1881, p. 181).
1884. Trematopora orbipora. Hall, Rep. State Geologist New York for the year 1883, p. 12.
1887. Trematopora (Orthopora ?) orbipora. Hall and Simpson, Pal. New York, VI, p. 188, pl. lv, 13, 14, pl. lvi, 8.
Hamilton: Fallbrook, near Lake Canandaigua, New York.

Orthopora ornata (Hall and Simpson).

1887. Trematopora (Orthopora) ornata. Hall and Simpson, Pal. New York, VI, p. 184, pl. lv, 1, pl. lvi, 4.
Hamilton: Near Geneseo, New York.

Orthopora ovatipora (Hall).

1879. Trematopora ovatipora. Hall, Thirty-second Ann. Rep. New York State Museum, p. 151 (reprint, 1880, p. 13).
1883. Trematopora ? ovatipora. Hall, Rep. State Geologist New York for the year 1882, pl. xi, 9–11.
1887. Trematopora (Orthopora) ovatipora. Hall and Simpson, Pal. New York, VI, p. 17, pl. xi, 9–11, pl. xxiii, 5.
Lower Helderberg: Clarksville, New York.

Orthopora parallela (Hall).

1879. Trematopora parallela. Hall, Thirty-second Ann. Rep. New York State Museum, p. 152 (reprint, 1880, p. 14).
1883. Trematopora ? parallela. Hall, Rep. State Geologist New York for the year 1882, pl. xi, 13, 14.
1887. Trematopora (Orthopora) parallela. Hall and Simpson, Pal. New York, VI, p. 19, pl. xi, 13, 14, pl. xxiii, 7, 8.
Lower Helderberg: Clarksville, New York.

Orthopora polygona (Hall).

1883. Trematopora polygona. Hall, Trans. Albany Institute, X, p. 180 (abstract, 1881, p. 180).
1884. Trematopora polygona. Hall, Rep. State Geologist New York for the year 1883, p. 9.
1887. Trematopora (Orthopora) polygona. Hall and Simpson, Pal. New York, VI, p. 176.
1899. Rhombopora polygona. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 164.
Hamilton: West Hamburg, New York.

Orthopora regularis (Hall).

1874. Trematopora regularis. Hall, Twenty-sixth Ann. Rep. New York State Museum, p. 106.
1879. Trematopora regularis. Hall, Thirty-second Ann. Rep. New York State Museum, p. 151 (reprint, 1880, p. 13).
1883. Trematopora regularis. Hall, Rep. State Geologist New York for the year 1882, pl. xi, 1–8, pl. xiii, 1–3 (in part).
1887. Trematopora (Orthopora) regularis. Hall and Simpson, Pal. New York, VI, p. 16, pl. xi, 1–8, pl. xxiii, 1.
Lower Helderberg: Clarksville, New York.

Orthopora regularis (Hall)—Continued.

1883. Trematopora regularis. Hall, Rep. State Geologist New York for the year 1882, pl. xxiv, 5, 6.

1886. Orthopora regularis. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxv, 27, 28.

1887. Trematopora (Orthopora) regularis. Hall and Simpson, Pal. New York, VI, p. 71, pl. xxv, 27, 28, pl. xxvi, 5, 6.

1897. Rhombopora regularis. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xix, 10, 11.

Hamilton: Falls of the Ohio.

Obs. The above arrangement has been given because the two forms are undoubtedly distinct. The Hamilton species should be compared with Rhombopora lineinodis Ulrich.

Orthopora reticulata (Hall and Simpson).

1887. Trematopora (Orthopora) reticulata. Hall and Simpson, Pal. New York, VI, p. 179, pl. lv, 9, pl. lvi, 5.

1899. Rhombopora reticulata. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 165, fig. 54.

Hamilton: West Hamburg, Erie County, New York.

Obs. Probably the same as Orthopora subquadrata.

Orthopora rhombifera (Hall).

1874. Trematopora rhombifera. Hall, Twenty-sixth Ann. Rep. New York State Museum, p. 103.

1879. Trematopora rhombifera. Hall, Thirty-second Ann. Rep. New York State Museum, p. 152 (reprint, 1880, p. 14).

1883. Trematopora rhombifera. Hall, Rep. State Geologist New York for the year 1882, pl. xi, 15–20.

1887. Trematopora (Orthopora) rhombifera. Hall and Simpson, Pal. New York, VI, p. 18, pl. xi, 15, 17–20, pl. xxiii, 11, 12.

Lower Helderberg: Clarksville and Schoharie, New York.

1883. Trematopora rhombifera. Hall, Rep. State Geologist New York for the year 1882, pl. xxiv, 3, 4.

1886. Orthopora rhombifera. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxv, 29.

1887. Trematopora (Orthopora) rhombifera. Hall and Simpson, Pal. New York, VI, p. 71, pl. xxv, 29, pl. xxvi, 3, 4.

Hamilton: Falls of the Ohio.

Obs. The above arrangement has been given because the two forms, though considered identical by Hall, are undoubtedly distinct.

Orthopora scutulata (Hall).

1883. Trematopora scutulata. Hall, Trans. Albany Institute, X, p. 148 (abstract, 1881, p. 6).

1883. Trematopora (Orthopora) scutulata. Hall, Rep. State Geologist New York for the year 1882, pl. xxiv, 7, 8.

1887. Trematopora (Orthopora) scutulata. Hall and Simpson, Pal. New York, VI, p. 70, pl. xxvi, 7, 8.

Upper Helderberg: Waterville and Onondaga Valley, New York.

Orthopora subquadrata (Hall).

1883. Trematopora subquadrata. Hall, Trans. Albany Institute, X, p. 181 (abstract, 1881, p. 181).

1884. Trematopora subquadrata. Hall, Rep. State Geologist New York for the year 1883, p. 11.

Orthopora subquadrata (Hall)—Continued.

1887. Trematopora (Orthopora) subquadrata. Hall and Simpson, Pal. New York, VI, p. 177, pl. lv, 10, pl. lvi, 1, 6.
Hamilton: Darien Center, New York.
Obs. See remark under Orthopora reticulata.

Orthopora tortalinea (Hall).

1883. Trematopora tortalinea. Hall, Trans. Albany Institute, X, p. 180 (abstract, 1881, p. 180).
1884. Trematopora tortalinea. Hall, Rep. State Geologist New York for the year 1883, p. 10.
1887. Trematopora (Orthopora) tortalinea. Hall and Simpson, Pal. New York, VI, p. 180, pl. lvi, 9.
1899. Rhombopora tortalinea. Grabau, Bull. Buffalo Soc. Nat. Hist., VI, p. 165, fig. 55.
Hamilton: Hamburg, New York.

Orthopora transversa (Hall).

1883. Trematopora transversa. Hall, Trans. Albany Institute, X, p. 180 (abstract, 1881, p. 180).
1884. Trematopora transversa. Hall, Rep. State Geologist New York for the year 1883, p. 8.
1887. Trematopora (Orthopora ?) transversa. Hall and Simpson, Pal. New York, VI, p. 187, pl. lv, 12, pl. lvi, 13, 14.
1889. Rhombopora ? transversa. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 164, fig. 52.
Hamilton: Hamburg, Erie County, New York.
Obs. See remark under Orthopora elongata.

PACHYDICTYA Ulrich. Genotype: Pachydictya robusta Ulrich.

1882. Pachydictya. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 152.
1887. Pachydictya. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 162.
1889. Pachydictya. Miller, North American Geol. Pal., p. 313.
1890. Pachydictya. Ulrich, Geol. Sur. Illinois, VIII, pp. 390, 522.
1893. Pachydictya. Ulrich, Geol. Minnesota, III, p. 145.
1897. Pachydictya. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 530.

Pachydictya acuta (Hall).

1847. Stictopora ? acuta. Hall, Pal. New York, I, p. 74, pl. xxvi, 3*a*–*b*.
1875. Ptilodictya acuta. Nicholson, Pal. Province Ontario, p. 12, fig. 3.
1882. Stictopora acuta. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 168, pl. viii, 1–1*b*.
1886. Pachydictya acuta. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, pp. 75, 76.
1889. Pachydictya acuta. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 44.
1893. Pachydictya acuta. Ulrich, Geol. Minnesota, III, p. 155, pl. viii, 11–17, pl. ix, 7.
1897. Pachydictya acuta. Whiteaves, Pal. Foss, III, p. 161.
Stictopora or Pachydictya acuta (in part), of various authors.
Trenton: Trenton Falls and other localities in New York; Burgin, Kentucky; Decorah, Iowa; various localities in Minnesota; St. Andrews, Manitoba.

Pachydictya alcyone (Billings).

1866. Ptilodictya alcyone. Billings, Catal. Sil. Foss. Anticosti, p. 36.

Pachydictya alcyone (Billings)—Continued.

1893. Pachydictya alcyone. Ulrich, Geol. Minnesota, III, p. 146.
Anticosti: Anticosti Island.
Obs. This may prove a synonym for Pachydictya crassa (Hall).

Pachydictya arguta Ulrich. See Pachydictya crassa (Hall).

Pachydictya bifurcata (Hall).

1853. Eschara bifurcata. Van Cleve (Mss.).
1883. Stictopora bifurcata. Hall, Twelfth Ann. Rep. Indiana Geol. Nat. Hist., p. 267, pl. xiii, 3, 4.
1887. Pachydictya bifurcata. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 163; ibid., III, 1888, pl. xv, 9.
1895. Pachydictya bifurcata. Foerste, Geol. Sur. Ohio, VII, p. 599, pl. xxviii, 9.
Clinton: Dayton and Fair Haven, Ohio.

Pachydictya bifurcata-instabilis Foerste.

1887. Pachydictya bifurcata var. instabilis. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 164; ibid., III, 1888, pl. xv, 10.
1895. Pachydictya bifurcata var. instabilis. Foerste, Geol. Sur. Ohio, VII, p. 599, pl. xxviii, 10.
Clinton: Near New Carlisle, Ohio.

Pachydictya conciliatrix Ulrich. See Trigonodictya conciliatrix (Ulrich).

Pachydictya crassa (Hall).

1852. Stictopora crassa. Hall, Pal. New York, II, p. 45, pl. xviii, 4*a–c*.
1874. Ptilodictya crassa. Nicholson and Hinde, Canadian Jour., new ser., XIV, p. 142.
1875. Ptilodictya crassa. Nicholson, Pal. Province Ontario, p. 45.
1893. Pachydictya crassa. Ulrich, Geol. Minnesota, III, p. 147.
1866. Ptilodictya rustica. Billings, Catal. Sil. Foss. Anticosti, p. 36.
1893. Pachydictya rustica. Ulrich, Geol. Minnesota, III, p. 146.
1866. Ptilodictya arguta. Billings, Catal. Sil. Foss. Anticosti, p. 36.
1893. Pachydictya arguta. Ulrich, Geol. Minnesota, III, p. 146.
1887. Stictopora scitula. Hall and Simpson, Pal. New York, VI, pl. lxi, 24, 25.
1893. Pachydictya scitula. Ulrich, Geol. Minnesota, III, p. 147.
1889. Ptilodictya farctus. Foerste, Proc. Boston Soc. Nat. Hist., XXIV, p. 328, pl. vi, 31.
1895. Pachydictya farctus. Foerste, Geol. Sur. Ohio, VII, p. 599, pl. xxxi, 31.
1889. Ptilodictya rudis. Foerste, Proc. Boston Soc. Nat. Hist., XXIV, p. 329, pl. vi, 33.
1895. Pachydictya (Rhinidictya) rudis. Foerste, Geol. Sur. Ohio, VII, p. 599, pl. xxxi, 32, 33.
Clinton: Wayne County, New York; Eaton, Ohio; Flamborough and Dundas, Ontario.
Anticosti: Anticosti Island.
Niagara: Lockport, New York.
Obs. Though rather meager in details and varying as to the number of rows of apertures on the frond, there is substantial agreement in all the descriptions cited above. Evidently we have in this species a cosmopolitan form.

Pachydictya elegans Ulrich.

1893. Pachydictya elegans. Ulrich, Geol. Minnesota, III, p. 154, pl. viii, 18, 19, pl. ix, 8, 9.
Trenton: St. Paul, Minnesota; Decorah, Iowa.

Pachydictya emaciata Foerste.

1887. Pachydictya emaciata. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 62; ibid., III, 1888, pl. xv, 8.
1895. Pachydictya emaciata. Foerste Geol. Sur. Ohio, VII, p. 599, pl. xxviii, 8.
Clinton: Dayton, Ohio.

Pachydictya emarcescens Foerste. See Ptilodictya expansa-emarcescens (Foerste).

Pachydictya everetti Ulrich.

1890. Pachydictya everetti. Ulrich, Geol. Sur. Illinois, VIII, p. 523, pl. xxxiii, 1–1*f*.
Trenton (Stones River): Dixon, Illinois.

Pachydictya ? famelica (Foerste).

1889. Ptilodictya famelicus. Foerste, Proc. Boston Soc. Nat. Hist., XXIV, p. 329, pl. vi, 32.
Clinton: Eaton and Belfast, Ohio.

Pachydictya farctus Foerste. See Pachydictya crassa (Hall).

Pachydictya fenestelliformis (Nicholson).

1875. Ptilodictya fenestelliformis. Nicholson, Ann. Mag. Nat. Hist., ser. 4, XV, p. 181, pl. xiv, 5–5*b*.
1875. Ptilodictya fenestelliformis. Nicholson, Pal. Ohio, II, p. 263, pl. xxv, 8–8*b*.
1875. Ptilodictya fenestelliformis. Nicholson, Pal. Province Ontario, p. 14.
1882. Phænopora ? fenestelliformis. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, pl. viii, 8.
1890. Pachydictya fenestelliformis. Ulrich, Geol. Sur. Illinois, VIII, p. 256.
Cincinnati (Richmond): Blanchester and other localities in Ohio; Wilmington, Illinios; ? Peterborough, Canada (Nicholson).

Pachydictya fenestelliformis-corticula Ulrich.

1890. Pachydictya fenestelliformis var. corticula. Ulrich, Geol. Sur. Illinois, VIII, p. 526, pl. xxxi, 1.
Cincinnati (Richmond): Wilmington, Illinois.

Pachydictya fimbriata Ulrich.

1886. Pachydictya fimbriata. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 75.
1893. Pachydictya fimbriata. Ulrich, Geol. Minnesota, III, p. 152, pl. viii, 28–34, pl. ix. 13, 14.
Trenton (Black River): Minneapolis and St. Paul, Minnesota.

Pachydictya ? firma Ulrich.

1890. Pachydictya firma. Ulrich, Geol. Sur. Illinois, VIII, p. 525, pl. xxxi, 2–2*f*.
Cincinnati (Richmond): Wilmington, Illinois.

Pachydictya foliata Ulrich.

1886. Pachydictya foliata. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 73.
1893. Pachydictya foliata. Ulrich, Geol. Minnesota, III, p. 149, pl. ix, 1–5, pl. x, 5–10.
1896. Pachydictya foliata. Ulrich, Zittel's Textb. Pal. (Eng. ed.), fig. 470 (p. 283).
Trenton (Stones River): Minneapolis, St. Paul, Cannon Falls, Preston, and Fountain, Minnesota.

Pachydictya gigantea Ulrich.

1890. Pachydictya gigantea. Ulrich, Geol. Sur. Illinois, VIII, p. 524, pl. xxxi, 3–3*e*.
Cincinnati (Richmond): Wilmington, Illinois.

Pachydictya hexagonalis Ulrich.

1889. Pachydictya hexagonalis. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 42, pl. ix, 2–2*c*.

1895. Pachydictya hexagonalis. Whiteaves, Pal. Foss., III, p. 118.

Cincinnati (Richmond): Stony Mountain, Manitoba.

Pachydictya magnipora Ulrich.

1889. Pachydictya magnipora. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II. p. 43.

1897. Pachydictya magnipora. Whiteaves, Pal. Foss., III, p. 161.

Trenton: St. Andrews, Manitoba; Kenyon, Minnesota.

Pachydictya obesa Foerste.

1887. Pachydictya obesa. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 165; ibid., III, 1888, pl. xv, 12.

1895. Pachydictya obesa. Foerste, Geol. Sur. Ohio, VII, p. 599, pl. xxviii, 12.

Clinton: Dayton, Ohio.

Pachydictya occidentalis Ulrich.

1886. Pachydictya occidentalis. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 75.

1893. Pachydictya occidentalis. Ulrich, Geol. Minnesota, III, p. 151, pl. viii, 20–27, pl. ix, 6–10.

Trenton (Black River): St. Paul and Goodhue County, Minnesota.

Pachydictya pumila Ulrich.

1890. Pachydictya pumila. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 186, fig. 11.

1893. Pachydictya pumila. Ulrich, Geol. Minnesota, III, p. 157, pl. x, 1–4, pl. viii, 4, 5.

1890. Rhinidictya humilis. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 185, fig. 10.

Trenton: Cannon Falls, Minnesota; Trenton Falls, New York.

Pachydictya pumila-sublata Ulrich.

1893. Pachydictya pumila var. sublata. Ulrich, Geol. Minnesota, III, p. 158.

Trenton: Cannon Falls, Minnesota.

Pachydictya robusta Ulrich.

1882. Pachydictya robusta. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 173, pl. viii, 10*a*–*c*.

Trenton (Stones River): Knoxville, Tennessee.

Pachydictya (Rhinidictya) rudis Foerste. See Pachydictya crassa (Hall).

Pachydictya rustica Ulrich. See Pachydictya crassa (Hall).

Pachydictya scitula Ulrich. See Pachydictya crassa (Hall).

Pachydictya ? splendens Ulrich.

1890. Pachydictya splendens. Ulrich, Geol. Sur. Illinois, VIII, p. 523, pl. xxxi, 2*g*, pl. xxxii, 1–1*b*.

Cincinnati (Richmond): Wilmington, Illinois.

Pachydictya triserialis Ulrich.

1890. Pachydictya triserialis. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 187, fig. 12.

1893. Pachydictya triserialis. Ulrich, Geol. Minnesota, III, p. 159, pl. x, 11–14.

Trenton: Montreal, Canada.

Pachydictya turgida Foerste.

1887. Pachydictya turgida. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 164; ibid., III, 1888, pl. xv, 11.

1895. Pachydictya turgida. Foerste, Geol. Sur. Ohio, VII, p. 599, pl. xxviii, 11.
Clinton: Dayton and Fair Haven, Ohio.

Palæocoryne Duncan and Jenkins. Genotype: Palæocoryne scoticum Duncan and Jenkins.

1869. Palæocoryne. Duncan and Jenkins, Phil. Trans. Royal Soc. London, vol. 159, p. 693.

1873. Palæocoryne. Duncan, Quar. Jour. Geol. Soc. London, XXIX, p. 412.

1873. Palæocoryne. Etheridge, Jun., Mem. Geol. Sur. Scotland, explanation sheet 23, p. 96.

1874. Palæocoryne. Young and Young, Geol. Mag., Dec. 2, I, p. 422.

1879. Palæocoryne. Vine, Hardwicke's Science Gossip, XV, pp. 225, 247.

Obs. The authors of this genus considered it hydrozoal in its affinities, but there can be no doubt but that Young and Young were correct in considering the fossils to which the name was given (derived from the Carboniferous shales of Scotland) appendages or processes forming an integral part of the zoarium of Fenestella.

PALESCHARA Hall. Genotype: Paleschara incrustans Hall.

1874. Paleschara. Hall, Twenty-sixth Ann. Rep. New York State Museum, p. 107.

1882. Paleschara. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 157.

1887. Paleschara. Hall and Simpson, Pal. New York, VI, p. xviii.

1889. Paleschara. Miller, North American Geol. Pal., p. 313.

1899. Paleschara. Grabau, Bull. Buffalo Soc. Nat Sci., VI, p. 170.

Paleschara amplectens Hall. See Leptotrypa ? quadrangularis (Nicholson).

Paleschara ? aspera Hall. See Paleschara maculata (Hall).

Paleschara beani (James).

1878. Ceramopora ? beani. James, Paleontologist, No. 1, p. 5.

1884. Ceramopora ? beani. James, Jour. Cincinnati Soc. Nat. Hist., VII, p. 23, fig. 3–3*b*.

1888. Ceramopora ? beani. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 37.

1888. Paleschara beani. Ulrich, American Geologist, I, p. 186.
Cincinnati (Utica and Richmond): Warren County, Ohio; Covington, Kentucky (Utica).

Paleschara bifoliata Hall. See Ptilodictya nebulosa (Hall).

Paleschara ?? bilateralis Hall.

1879. Paleschara ? bilateralis. Hall, Thirty-second Ann. Rep. New York State Museum, p. 160 (reprint, 1880, p. 22).

1883. Paleschara ? bilateralis. Hall, Rep. State Geologist New York for the year 1882, pl. xvi, 22, 23.

1887. Paleschara ? (Lichenalia ?) bilateralis. Hall and Simpson, Pal. New York, VI, p. 36, pl. xvi, 22, 23.
Lower Helderberg: Clarksville, New York.

Paleschara concentrica Hall and Simpson.

1883. Species undetermined. Hall, Rep. State Geologist New York for the year 1882, pl. xvi, 24.

Paleschara concentrica Hall and Simpson—Continued.

1887. Paleschara concentrica. Hall and Simpson, Pal. New York, VI, p. 67, pl. xvi, 24.
Lower Helderberg: Clarksville, New York.

Paleschara ? dissimilis (Hall).

1879. Lichenalia dissimilis. Hall, Thirty-second Ann. Rep. New York State Museum, p. 158 (reprint, 1880, p. 80).
1883. Lichenalia dissimilis. Hall, Rep. State Geologist New York for the year 1882, pl. xv, 10–13.
1887. Paleschara ? dissimilis. Hall and Simpson, Pal. New York, VI, p. 35, pl. xv, 10–13.
Lower Helderberg: Schoharie, New York.

Paleschara ? foliata Hall. See Ptilodictya nebulosa (Hall).

Paleschara ? incrassata Hall.

1879. Paleschara incrassata. Hall, Twenty-eighth Ann. Rep. New York State Museum (Museum edition), p. 121.
1882. Paleschara incrassata. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 246.
Niagara: Waldron, Indiana.

Paleschara incrustans Hall.

1874. Paleschara incrustans. Hall, Twenty-sixth Ann. Rep. New York State Museum, p. 107.
1879. Paleschara incrustans. Hall, Thirty-second Ann. Rep. New York State Museum, p. 160 (reprint, 1880, p. 22).
1883. Paleschara incrustans. Hall, Rep. State Geologist New York for the year 1882, pl. xvi, 15–21, ? 24.
1887. Paleschara incrustans. Hall and Simpson, Pal. New York, VI, p. 35, pl. xvi, 15–21.
1897. Paleschara incrustans. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xx, 1, 2.
Lower Helderberg: Clarksville, New York.

Paleschara ? intercella (Hall).

1883. Paleschara intercella. Hall, Trans. Albany Institute, X, p. 179 (abstract, 1881, p. 179).
1884. Paleschara intercella. Hall, Rep. State Geologist New York for the year 1883, p. 5.
1891. Paleschara intercella. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 37; Forty-fourth Ann. Rep. New York State Museum, p. 67.
1899. Paleschara intercella. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 170.
Hamilton: York and Eighteen-Mile Creek, New York.

Paleschara ? maculata Hall.

1876. Paleschara maculata. Hall, Twenty-eighth Ann. Rep. New York State Museum (documentary edition), pl. viii, 9, 10; ibid. (Museum edition 1879), p. 121, pl. viii, 9–13.
1882. Paleschara maculata. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 246, pl. vii, 9–13.
1883. Leptotrypa maculata. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 158.
1876. Paleschara ? aspera. Hall, Twenty-eighth Ann. Rep. New York State Museum (documentary edition), pl. viii, 11–13.
Niagara: Waldron, Indiana.

Paleschara ? offula Hall.

1876. Paleschara offula. Hall, Twenty-eighth Ann. Rep. New York State Museum (documentary edition), pl. viii, 7, 8; ibid. (Museum edition, 1879), p. 120, pl. viii, 7, 8

1882. Paleschara offula. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 245, pl. vii, 7, 8.

1883. Leptotrypa offula. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 158.

Niagara: Waldron, Indiana.

Paleschara ? pertenuis Hall.

1883. Paleschara ? (Lichenalia ?) pertenuis. Hall, Trans. Albany Institute, X, p. 179 (abstract, 1881, p. 179).

1884. Paleschara ?? (Lichenalia ?) pertenuis. Hall, Rep. State Geologist New York for the year 1883, p. 7.

1891. Paleschara pertenuis. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 37; Forty-fourth Ann. Rep. New York State Museum, p. 67.

Hamilton: Lodi Landing and Darien Center, New York.

Paleschara quadrangularis Whiteaves. See Leptrotrypa ? quadrangularis (Nicholson).

Paleschara ? radiata Hall.

1879. Paleschara ? radiata. Hall, Thirty-second Ann. Rep. New York State Museum, p. 160 (reprint, 1880, p. 22).

1883. Paleschara ? radiata. Hall, Rep. State Geologist New York for the year 1882, pl. xvi, 13, 14.

1887. Paleschara radiata. Hall and Simpson, Pal. New York, VI, p. 35, pl. xvi, 13, 14.

1897. Paleschara radiata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xx, 3.

Lower Helderberg: Clarksville, New York.

Paleschara ? reticulata Hall.

1883. Paleschara reticulata. Hall, Trans, Albany Institute, X, p. 179 (abstract, 1881, p. 179).

1884. Paleschara reticulata. Hall, Rep. State Geologist New York for the year 1883, p. 6.

1891. Paleschara reticulata. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 38; Forty-fourth Ann. Rep. New York State Museum, p. 68.

1899. Paleschara reticulata. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 171, fig. 66.

Hamilton: York and Eighteen-Mile Creek, New York.

Paleschara ? sphærion Hall. See Leptotrypa ? sphærion (Hall).

Paleschara ? (Chætetes ?) sphærion Hall. See Leptotrypa ? sphærion (Hall).

Paleschara ? tenuis Hall and Simpson.

1887. Paleschara ? tenuis. Hall and Simpson, Pal. New York, VI. p. 36.

Lower Helderberg: Clarksville, New York.

Paleschara ? variacella Hall.

1883. Paleschara variacella. Hall, Trans. Albany Institute, X, p. 179 (abstract, 1881, p. 179).

1884. Paleschara variacella. Hall, Rep. State Geologist New York for the year 1883, p. 6.

Paleschara ? variacella Hall—Continued.

1891. Paleschara variacella. Hall, Rep. State Geologist New York for the year 1890, p. 39; Forty-fourth Ann. Rep. New York State Museum, p. 69.

Hamilton: York, New York.

PATELLIPORA Rominger. Genotype: Patellipora stellata Rominger.

1887. Patellipora. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 11.

Obs. This genus can not be considered fully established, as no details have been made known concerning the internal structure of the type and only known species.

Patellipora stellata Rominger.

1887. Patellipora stellata. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 11.

Obs. This species is founded upon three specimens discovered "in drift bowlders at Ann Arbor, associated with characteristic Corniferous limestone fossils in silicified conditions."

Penniretepora D'Orbigny.

1850. Penniretepora. D'Orbigny, Prodr. de Pal., I, p. 45.

1895. Penniretepora. Whidborne, Devon. Fauna England, (Pal. Soc. Publ.), II, pt. 4, p. 185.

Obs. This genus was never properly established.

PERONOPORA Nicholson. Genotype: Monticulipora frondosa Nicholson (not D'Orbigny)=Chætetes decipiens Rominger.

1881. Peronopora. Nicholson, Genus Monticulipora, pp. 102, 215.

1882. Peronopora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 153.

1886. Peronopora. Waagen and Wentzel, Pal. Indica, Ser. XIII, p. 875.

1890. Peronopora. Ulrich, Geol. Sur. Illinois, VIII, p. 370.

1896. Peronopora (in part). Zittel's Textb. Pal. (Engl. ed.), p. 104.

1896. Peronopora. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 272.

Peronopora compressa (Ulrich).

1879. Chætetes compressus. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 27, pl. vii, 25–25*b*.

1882. Peronopora compressa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 244.

1894. Monticulipora compressa. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 75.

1882. Peronopora uniformis. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 244, pl. x, 8, 8*a*.

1895. Monticulipora uniformis. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 76.

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

Obs. Peronopora uniformis Ulrich is not a valid species, having been founded upon a phase of Peronopora compressa Ulrich in which the mesopores are reduced to a minimum. Other species of Peronopora exhibit this same characteristic.

Peronopora decipiens (Rominger).

1866. Chætetes decipiens. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 116.

1882. Peronopora decipiens. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 244.

1874. Chætetes frondosus (not of D'Orbigny). Nicholson, Quar. Jour. Geol. Soc. London, XXX, p. 508, pl. xxx, 2–2*b*.

1875. Chætetes frondosus (not of D'Orbigny). Nicholson, Pal. Ohio, II, p. 208, pl. xxii, 1–1*b*.

1876. Chætetes frondosus (not of D'Orbigny). Nicholson, Ann. Mag. Nat. Hist., ser. 4, XVIII, p. 91, pl. v, 11, 11*a*.

Peronopora decipiens (Rominger)—Continued.

1881. Chaetetes frondosus. Quenstedt, Roehren- und Sternkorallen, p. 73, pl. cxlvi, 3–5 (not 8).

1881. Monticulipora (Peronopora) frondosa (not of D'Orbigny). Nicholson, Genus Monticulipora, p. 216, figs. 46, 47, pl. v, 4, 4*a*, 5, 5*a*.

1888. Monticulipora frondosa (not of D'Orbigny). James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 17.

1895. Monticulipora frondosa (not of D'Orbigny). J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 72.

Cincinnati (Lorraine and Richmond): Madison and other localities in Indiana; various localities in Ohio, Kentucky, and Tennessee.

Peronopora vera Ulrich.

1888. Peronopora vera. Ulrich, American Geologist, II, p. 40.

Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

Obs. This is a good species, but requires further description before the name can be considered valid.

PETALOTRYPA Ulrich. Genotype: Petalotrypa compressa Ulrich.

1890. Petalotrypa. Ulrich, Geol. Sur. Illinois, VIII, pp. 377, 453.

1889. Petalotrypa. (Ulrich, in press), Miller, North American Geol. Pal., p. 314.

1897. Petalotrypa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 582.

Petalotrypa compressa Ulrich.

1890. Petalotrypa compressa. Ulrich, Geol. Sur. Illinois, VIII, p. 454, pl. xlvi, 4–4*f*.

1897. Petalotrypa compressa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 157–159 (p. 582).

Hamilton: Davenport, Iowa; Rock Island, Illinois.

Petalotrypa delicata Ulrich.

1890. Petalotrypa delicata. Ulrich, Geol. Sur. Illinois, VIII, p. 454, pl. xlvi, 5–5*b*.

Hamilton: Buffalo, Iowa; Rock Island, Illinois.

PETIGOPORA Ulrich. Genotype: Petigopora gregaria Ulrich.

1882. Petigopora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 155.

1889. Petigopora. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 34.

1889. Petigopora. Miller, North American Geol. Pal., p. 314.

1890. Petigopora. Ulrich, Geol. Sur. Illinois, VIII, p. 372.

1896. Petigopora. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 274.

1897. Petigopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 563.

Petigopora asperula Ulrich.

1883. Petigopora asperula. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 157, pl. vi, 4–4*c*.

1886. Petigopora asperula. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 130.

1888. Monticulipora wetherbyi var. asperula. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 24.

1895. Monticulipora asperula. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 81.

1897. Petigopora gregaria (in part). Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 129 (in part)(p. 564).

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

Petigopora gregaria Ulrich.

1883. Petigopora gregaria. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 155, pl. vii, 3–3*c*.

1896. Petigopora gregaria. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 124.

1897. Petigopora gregaria. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 129 (in part)(p. 564).

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

Petigopora petechialis (Nicholson).

1875. Chætetes petechialis. Nicholson, Pal. Ohio, II, p. 213, pl. xxii, 5, 5*a*.

1883. Petigopora petechialis. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 156.

1886. Petigopora petechialis. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 103.

1888. Monticulipora petechialis. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 24.

1889. Petigopora petechialis. Miller, North American Geol. Pal., fig. 496 (p. 314).

1895. Monticulipora petechialis. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 85.

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

Petigopora scabiosa Ulrich.

1889. Petigopora scabiosa. Ulrich, Contr. Micro-Pal. Cambro Sil., Part II, p. 34.

1897. Petigopora scabiosa. Whiteaves, Pal. Foss., III, p. 116.

Cincinnati (Richmond): Stony Mountain, Manitoba.

PHACELOPORA Ulrich. Genotype: Phacelopora pertenuis Ulrich.

1890. Phacelopora. Ulrich, Geol. Sur. Illinois, VIII, p. 368.

1889. Phacelopora. (Ulrich, in press), Miller, North American Geol. Pal., p. 314.

1897. Phacelopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 600.

Phacelopora constricta Ulrich.

1890. Phacelopora constricta. Ulrich, Geol. Sur. Illinois, VIII, p. 406, pl. xxix, 2.

1897. Phacelopora constricta. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 209 (p. 600).

Trenton: Burgin, Kentucky.

Obs. Mr. Ulrich now regards this as the interior cast of some undetermined species of Helopora or Arthroclema.

Phacelopora pertenuis Ulrich.

1890. Phacelopora pertenuis. Ulrich, Geol. Sur. Illinois, VIII, p. 406, pl. xxix, 1–1*c*.

1894. Phacelopora pertenuis. Keyes, Missouri Geol. Sur., V, p. 13, pl. xxxiii, 3.

1897. Phacelopora pertenuis. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 207, 208 (p. 600).

Trenton: Thebes, Illinois.

PHÆNOPORA Hall. Genotype: Phænopora explanata Hall.

1852. Phænopora. Hall, Pal. New York, II, p. 46.

1882. Phænopora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 152.

1887. Phænopora. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 157.

1889. Phænopora. Miller, North American Geol. Pal., p. 314.

1890. Phænopora. Ulrich, Geol. Sur. Illinois, VIII, p. 392.

PHÆNOPORA Hall—Continued.

1893. Phænopora. Ulrich, Geol. Minnesota, III, p. 173.
1896. Phænopora. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 279.
1897. Phænopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 541.

Phænopora constellata Hall.

1852. Phænopora constellata. Hall, Pal. New York, II, p. 47, pl. xviii, 7*a–e*.
1889. Phænopora constellata. Miller, North American Geol. Pal., fig. 497 (p. 314).
1890. Phænopora constellata. Ulrich, Geol. Sur. Illinois, VIII, fig. 12*a*, *b* (p. 392).
Clinton: Wayne County, New York; Hamilton, Ontario.

Phænopora ensiformis Hall.

1852. Phænopora ensiformis. Hall, Pal. New York, II, p. 48, pl. xviii, 8*a–c*.
1874. Phænopora ensiformis. Nicholson and Hinde, Canadian Jour., new ser., XIV, p. 142.
1875. Phænopora ensiformis. Nicholson, Pal. Province Ontario, p. 45, fig. 19, 2, 2*a*.
1882. Ptilodictya ensiformis. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 172.
1895. Phænopora ensiformis. Foerste, Geol. Sur. Ohio, VII, p. 598.
Clinton: Flamborough, Dundas, and Hamilton, Ontario.

Phænopora excellens (Billings).

1866. Ptilodictya excellens. Billings, Catal. Sil. Foss. Anticosti, p. 34.
1882. Stictoporella ? excellens. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 169.
1889. Phænopora excellens. Miller, North American Geol. Pal., p. 314.
Anticosti: Anticosti Island.
Obs. Compare Phænopora explanata Hall.

Phænopora expansa Hall and Whitfield.

1853. Eschara bipunctata. Van Cleve (MSS.).
1875. Phænopora (Ptilodictya) expansa. Hall and Whitfield, Pal. Ohio, II, p. 114, pl. v, 1.
1883. Ptilodictya expansa (in part). Hall, Twelfth Ann. Rep. Indiana Geol. Nat. Hist., p. 266. (Gives the original description, but pl. xii, 1, 2 is the Ptilodictya expansa, which see).
1890. Phænopora expansa. Ulrich, Geol. Sur. Illinois, VIII, fig. 12*c* (p. 392).
1895. Phænopora expansa. Foerste, Geol. Sur. Ohio, VII, p. 598, pl. xxix, 1.
1879. Ptilodictya platyphylla. James, Paleontologist, No. 3, p. 21.
1887. Phænopora platyphylla. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 157; ibid., III, 1888, pl. xvi, 1.
1883. Ptilodictya bipunctata. Hall, Twelfth Ann. Rep. Indiana Geol. Nat. Hist., p. 266, pl. xiii, 5.
Not Ptilodictya expansa. Foerste, Bull. Sci. Lab. Denison Univ., II, 1887, p. 155; ibid., III, 1888, pl. xv, 5; Proc. Boston Soc. Nat. Hist., XXIV, 1889, p. 327.
Clinton: Dayton and Clinton County, Ohio.

Phænopora (Ptilodictya) expansa Hall and Whitfield. See Phænopora expansa Hall and Whitfield.

Phænopora explanata Hall.

1852. Phænopora explanata. Hall, Pal. New York, II, p. 46, pl. xviii, 6*a–e*.
Clinton: Flamborough Head and Hamilton, Ontario.
Obs. See also Phænopora excellens (Billings).

Phænopora ? fenestelliformis Ulrich. See Pachydictya fenestelliformis (Nicholson).

Phænopora fimbriata (James).

1853. Eschara ramosa. Van Cleve (MSS.).
1878. Ptilodictya fimbriata. James, Paleontologist, No. 1, p. 8.
1887. Phænopora fimbriata. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 161; ibid., III, 1888, pl. xv, 7.
1889. Phænopora fimbriata. Foerste, Proc. Boston Soc. Nat. Hist., XXIV, p. 330.
1895. Phænopora fimbriata. Foerste, Geol. Sur. Ohio, VII, p. 599, pl. xxviii, 7.
1883. Stictopora vanclevii. Hall, Twelfth Ann. Rep. Indiana Geol. Nat. Hist., p. 268, pl. xiii, 1, 2.
Clinton: Clinton County, Belfast, and Dayton, Ohio.

Phænopora incipiens Ulrich.

1893. Phænopora incipiens. Ulrich, Geol. Minnesota, III, p. 174, pl. xiii, 14–17.
Trenton: Montreal, Canada; Chimney Point, Vermont; St. Paul, Minnesota.

Phænopora lirata (Hall).

1874. Escharopora lirata. Hall, Twenty-sixth Ann. Rep. New York State Museum, p. 100.
1879. Escharopora lirata. Hall, Thirty-second Ann. Rep. New York State Museum, p. 161 (reprint, 1880, p. 23).
1883. Escharopora (Ptilodictya) lirata (in part). Hall, Rep. State Geologist New York for the year 1882, pl. xvii, 1–6.
1887. Ptilodictya lirata. Hall and Simpson, Pal. New York, VI, p. 38, pl. xvii, 1–4, pl. xxiiiA, 20.
1897. Phænopora lirata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xv, 8.
Lower Helderberg: Clarksville, New York.

Phænopora magna (Hall and Whitfield).

1853. Eschara compressa. Van Cleve (MSS.).
1875. Stictopora magna. Hall and Whitfield, Pal. Ohio, II, p. 112, pl. v, 5, 6.
1887. Phænopora magna. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 159; ibid., III, 1888, pl. xv, 6, pl. xvi, 2.
1889. Phænopora magna. Foerste, Proc. Boston Soc. Nat. Hist., XXIV, p. 331.
1895. Phænopora magna. Foerste, Geol. Sur. Ohio, VII, p. 599, pl. xxviii, 6, pl. xxix, 2*a*–*c*.
1883. Stictopora compressa. Hall, Twelfth Ann. Rep. Indiana Geol. Nat. Hist., p. 267, pl. xiv, 3.
Clinton: Dayton and Belfast, Ohio.

Phænopora multifida (Hall).

1853. Eschara multifida. Van Cleve (MSS.)
1878. Ptilodictya sp. (?). James, Paleontologist, No. 1, p. 8. (Name P. Welshi suggested.)
1883. Stictopora multifida. Hall, Twelfth Ann. Rep. Indiana Geol. Nat. Hist., p. 268, pl. xiv, 4.
1887. Phænopora multifida. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 160; ibid., III, 1888, pl. xvi, 3.
1895. Phænopora multifida. Foerste, Geol. Sur. Ohio, VII, p. 599, pl. xxix, 3.
Clinton: Dayton, Ohio; Hanover, Ohio, Indiana.

Phænopora multipora Hall. See Eurydictya multipora (Hall).

Phænopora platyphylla Foerste. See Phænopora expansa Hall and Whitfield.

Phænopora punctata (Nicholson and Hinde).

1874. Ptilodictya ? punctata. Nicholson and Hinde, Canadian Jour., new ser., XIV, p. 143, fig. 1*a–b*.
1874. Ptilodictya ? punctata. Nicholson, Pal. Province Ontario, p. 46, fig. 20.
1893. Phænopora punctata. Ulrich, Geol. Minnesota, III, p. 174.
Clinton: Dundas, Ontario.

Phænopora superba (Billings).

1866. Ptilodictya superba. Billings, Catal. Sil. Foss. Anticosti, p. 35.
1893. Phænopora superba. Ulrich, Geol. Minnesota, III, p. 174.
Anticosti: Anticosti Island.

Phænopora tenuis (Hall).

1874. Escharopora tenuis. Hall, Twenty-sixth Ann. Rep. New York State Museum, p. 99.
1879. Escharopora tenuis. Hall, Thirty-second Ann. Rep. New York State Museum, p. 161 (reprint, 1880, p. 23).
1883. Escharopora (Ptilodictya) tenuis (in part). Hall, Rep. State Geologist New York for the year 1882, pl. xiii, 14; pl. xvii, 7–13.
1887. Ptilodictya tenuis. Hall and Simpson, Pal. New York, VI, p. 39, pl. xiii, 14; pl. xvii, 7–12; pl. xxiii A, 15.
1889. Phænopora tenuis. Miller, North American Geol. Pal., p. 315.
1897. Phænopora tenuis. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xv, 9, 10.
Lower Helderberg: Albany and Schoharie counties, New York.

Phænopora wilmingtonensis Ulrich.

1893. Phænopora wilmingtonensis. Ulrich, Geol. Minnesota, III, p. 175, pl. xiii, 22–26.
Cincinnati (Richmond): Wilmington, Illinois.

PHRACTOPORA Hall. Genotype: Phractopora cristata Hall.

1883. Phractopora. Hall, Trans. Albany Institute, X, p. 154 (abstract, 1881, p. 12).
1887. Phractopora. Hall and Simpson, Pal. New York, VI, p. xvii.
1889. Phractopora. Miller, North American Geol. Pal., p. 315.
1897. Phractopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 539.

Phractopora cristata Hall.

1883. Phractopora cristata. Hall, Trans. Albany Institute, X, p. 154 (abstract, 1881, p. 12).
1886. Phractopora cristata. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxxi, 36–38.
1887. Phractopora cristata. Hall and Simpson, Pal. New York, VI, p. 99, pl. xxxi, 36–38.
1897. Phractopora cristata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxiv, 11–13.
1886. Lichenalia (Phractopora) cristata var. lineata. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxxi, 34, 35.
1887. Phractopora cristata var. lineata. Hall and Simpson, Pal. New York, VI, p. 99, pl. xxxi, 34, 35.
1897. Phractopora lineata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxiv, 14.
Hamilton: Falls of the Ohio.

Phractopora cristata var. lineata Hall. See Phractopora cristata Hall.
Phractopora lineata Simpson. See Phractopora cristata Hall.

Phractopora megastoma (Ulrich).
1890. Glyptopora megastoma. Ulrich, Geol. Sur. Illinois, VIII, p. 518, pl. lxxviii, 5, 5*a*.
1888. Glyptopora megastoma. Ulrich, Bull. Denison Univ., IV, p. 83. (Not defined.)
1894. Glyptopora megastoma. Keyes, Missouri Geol. Sur., V, p. 21.
Keokuk: Warsaw and Nauvoo, Illinois; Keokuk and Bentonsport, Iowa.
Waverly: Sciotoville, Ohio.

Phractopora michelinia Simpson. See Glyptopora sagenella-lata Ulrich.

Phractopora pinnata (Ulrich).
1890. Glyptopora pinnata. Ulrich, Geol. Sur. Illinois, VIII, p. 156, pl. lxxviii, 2.
Burlington: Sagetown, Henderson County, Illinois.

Phractopora sagenella Simpson (not Prout). See Glyptopora michelinia (Prout).

Phractopora trifolia (Rominger).
1866. Fistulipora trifolia. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 122.
1890. Prismopora trifolia. Ulrich, Geol. Sur. Illinois, VIII, p. 505, pl. lxxvii, 4–4*b*.
1894. Prismopora trifolia. Keyes, Missouri Geol. Surv., V, p. 18.
Keokuk: Lagrange, Missouri; Keokuk, Iowa; Warsaw, Illinois.

PHYLLODICTYA Ulrich. Genotype: Phyllodictya frondosa Ulrich.
1882. Phyllodictya. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 153.
1889. Phyllodictya. Miller, North American Geol. Pal., p. 315.
1890. Phyllodictya. Ulrich, Geol. Sur. Illinois, VIII, p. 390.
1893. Phyllodictya. Ulrich, Geol. Minnesota, III, p. 141.
1896. Phyllodictya. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 280.
1897. Phyllodictya. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 531.

Phyllodictya frondosa Ulrich.
1882. Phyllodictya frondosa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 174, pl. viii, 11–11*b*.
1893. Phyllodictya frondosa (?). Ulrich, Geol. Minnesota, III, p. 142.
1897. Phyllodictya frondosa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 88 (p. 531).
Trenton (Stones River): High Bridge and Frankfort, Kentucky; ? Minneapolis, Minnesota.

Phyllodictya varia Ulrich.
1893. Phyllodictya varia. Ulrich, Geol. Minnesota, III, p. 144, pl. xiv, 1–8.
Trenton (Black River): Minneapolis and Cannon Falls, Minnesota.

PHYLLOPORA King. Genotype: Gorgonia ehrenbergi Geinitz.
1849. Phyllopora. King, Ann. Mag. Nat. Hist., ser. 2, II, p. 389.
1850. Phyllopora. King, Mon. Permian Foss. England, p. 40.
1882. Phyllopora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 150.
1885. Phyllopora. Waagen and Pichl, Pal. Indica, Ser. XIII, pp. 774, 796.
1886. Phyllopora. Ulrich, Contr. American Pal., I, p. 5.
1889. Phyllopora. Miller, North American Geol. Pal., p. 315.

PHYLLOPORA King—Continued.

1885. Phyllopora. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 718, 726; Forty-seventh Ann. Rep. New York State Museum, pp. 912, 920.

1896. Phyllopora. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 283.

1897. Phyllopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 512, 520.

Phyllopora aspera Ulrich.

1890. Phyllopora aspera. Ulrich, Geol. Sur. Illinois, VIII, p. 613, pl. xliv, 5–5*b*.
Hamilton: Falls of the Ohio.

Phyllopora ? corticosa Ulrich. See Phylloporina corticosa (Ulrich).

Phyllopora ehrenbergi Swallow (not Geinitz).

1858. Phyllopora ehrenbergi. Swallow, Trans. St. Louis Acad. Sci., I, p. 180.
Lower Permian: Kansas.

Obs.—As no description was given, the form so identified can not be recognized.

Phyllopora superba Ulrich. See Reteporidra perundata (Hall).

Phyllopora variolata Ulrich. See Phylloporina variolata (Ulrich).

PHYLLOPORINA Ulrich. Genotype: Retepora Trentonensis Nicholson.

Retepora, as applied by various authors to Ordovician and Silurian anastomosing bryozoa (not Lamarck, 1801).

1847. Gorgonia (?). Hall, Pal. New York, I, pp. 16, 76 (not Linnæus, 1745).

1847. Intricaria. Hall, Pal. New York, I, p. 77.

1878. Intricaria. Miller and Dyer, Contr. Pal., No. 2, p. 7.

1850. Subretepora. D'Orbigny, Prodr. de Pal., I, p. 22.

1889. Subretepora. Miller, North American Geol. Pal., p. 326. (See Geol. Sur. Illinois, VIII, pp. 683, 687.)

1882. Phyllopora (in part). Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 150.

1886. Nov. Gen. (not named). Ulrich, Contr. American Pal., I, p. 5.

1887. Phylloporina. (Ulrich), Foerste, Bull. Sci. Lab. Denison Univ., II, p. 150.

1890. Phylloporina. Ulrich, Geol. Sur. Illinois, VIII, pp. 399, 639.

1893. Phylloporina. Ulrich, Geol. Minnesota, III, p. 208.

1896. Phylloporina. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 283.

Phylloporina angulata (Hall).

1852. Retepora angulata. Hall, Pal. New York, II, p. 49, pl. xix, 3*a–h*.

1875. Retepora angulata (?). Hall and Whitfield, Pal. Ohio, II, p. 111, pl. v. 2–4.

1882. Retepora angulata. Hall, Twelfth Ann. Rep. Indiana Geol. Nat. Hist., p. 269, pl. xiv, 1, 2.

1887. Phylloporina angulata. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 151; ibid., III, 1888, pl. xv, 1.

1889. Subretepora angulata. Miller, North American Geol. Pal., fig. 523 (p. 326).

1895. Phylloporina angulata. Foerste, Geol. Sur. Ohio, VII, p. 600, pl. xxviii, 1.
Clinton: Rochester and Sodus, New York; Flamborough, Canada; Dayton, Todds Fork, Fair Haven, and Centerville, Ohio.

Phylloporina aspera (Hall).

1847. Gorgonia ? aspera. Hall, Pal. New York, I, p. 16, pl. iv, 3*a*, *b*.

1889. Subretepora aspera. Miller, North American Geol. Pal., p. 326.

1890. Phylloporina aspera. Ulrich, Geol. Sur. Illinois, VIII, p. 332, pl. liii, 4–4*c*.
Chazy: Chazy, New York; Mingan, Canada.

Phylloporina asperato-striata (Hall).

1852. Retepora asperato-striata. Hall, Pal. New York, II, p. 161, pl. xlC, 2*a*–*h*.
1889. Subretepora asperato-striata. Miller, North American Geol. Pal., p. 326.
1890. Phylloporina asperato-striata. Ulrich, Geol. Sur. Illinois, VIII, p. 332, pl. liii, 5–5*b*.
Niagara: Lockport, New York.

Phylloporina clathrata (Miller and Dyer).

1878. Intricaria clathrata. Miller and Dyer, Contr. Pal., No. 2, p. 7, pl. iii, 5, 5*a*.
1889. Subretepora clathrata. Miller, North American Geol. Pal., p. 326.
1890. Phylloporina clathrata. Ulrich, Geol. Sur. Illinois, VIII, p. 639.
Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

Phylloporina corticosa (Ulrich).

1886. Phyllopora ? corticosa. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 61.
1889. Subretepora corticosa. Miller, North American Geol. Pal., p. 326.
1890. Phylloporina corticosa. Ulrich, Geol. Sur. Illinois, VIII, p. 639, pl. liii, 3, 3*a*.
1893. Phylloporina corticosa. Ulrich, Geol. Minnesota, III, p. 212, pl. v, 1–10.
Trenton (Black River): Cannon Falls and St. Paul, Minnesota.

Phylloporina dawsoni Ulrich.

1890. Phylloporina dawsoni. Ulrich, Geol. Sur. Illinois, VIII, p. 331, pl. liv, 1–1*i*.
1889. Subretepora dawsoni. (Ulrich, in press), Miller, North American Geol. Pal., p. 326.
Trenton: Montreal, Canada; Chimney Point, Vermont.

Phylloporina fenestrata (Hall).

1850. Retepora fenestrata. Hall, Third Ann. Rep. State Cabinet Nat. Hist., p. 178, pl. ii, 1*a*–*e*.
1889. Subretepora fenestrata. Miller, North American Geol. Pal., p. 326.
Trenton: Lowville, Lewis County, New York.

Phylloporina gracilis (Hall).

1847. Retepora gracilis. Hall, Pal. New York, I, p. 15, pl. iv, 2, 2*a*.
1389. Subretepora gracilis. Miller, North American Geol. Pal., p. 326.
Chazy: Chazy, New York.

Phylloporina granistriata Ulrich.

1890. Phylloporina granistriata. Ulrich, Geol. Sur. Illinois, VIII, p. 639, pl. xxix, 3, 3*a*.
Trenton: Alexander County, Illinois; Lexington, Kentucky.

Phylloporina halli Ulrich.

1890. Phylloporina halli. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 181, fig. 7.
1893. Phylloporina halli. Geol. Minnesota, III, p. 211, pl. iv, 16–21.
Trenton (Black River): St. Paul, Minnesota.

Phylloporina incepta (Hall).

1847. Retepora incepta. Hall, Pal. New York, I, p. 15, pl. iv, 1*a*, *b*.
1889. Subretepora incepta. Miller, North American Geol. Pal., p. 326.
Chazy: Galway, Saratoga County, New York.

Phylloporina reticulata (Hall).

1847. Intricaria ? reticulata. Hall, Pal. New York, I, p. 77, pl. xxvi, 8*a*–*c*.
1889. Subretepora reticulata. Miller, North American Geol. Pal., p. 326, fig. 524.
1890. Phylloporina reticulata. Geol. Sur. Illinois, VIII, pp. 332, 639, pl. liii, 2, 2*a*.

Phylloporina reticulata (Hall)—Continued.

1893. Phylloporina reticulata. Geol. Minnesota, III, p. 210, pl. iv, 8–15.
Trenton (Black River and Trenton): Watertown, New York; various localities in New York, Vermont, Minnesota and Canada.

Phylloporina sublaxa Ulrich.

1890. Phylloporina sublaxa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 179, fig. 6.
1893. Phylloporina sublaxa. Ulrich, Geol. Minnesota, III, p. 209, pl. iv, 1–7.
Trenton (Stones River): Minneapolis, Minnesota; Lebanon, Lavergne and Murfreesboro, Tennessee.

Phylloporina trentonensis (Nicholson).

1875. Retepora Trentonensis. Nicholson, Geol. Mag., new ser., II, p. 37, pl. ii, 4–4*b*.
1875. Retepora Trentonensis. Nicholson, Pal. Province Ontario, p. 15, pl. ii, 4–4*b*.
1889. Phylloporina trentonensis. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 47.
1889. Subretepora trentonensis. Miller, North American Geol. Pal., p. 326.
1890. Phylloporina trentonensis. Ulrich, Geol. Sur. Illinois, VIII, p. 640, pl. liii, 1–1*c*.
1897. Phylloporina trentonensis. Whiteaves, Pal. Foss., III, p. 162.
Trenton: Peterborough, Ontario; St. Andrews, Manitoba.

Phylloporina variolata (Ulrich).

1882. Phyllopora variolata. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 160, pl. vi, 14.
1889. Subretepora variolata. Miller, North American Geol. Pal., p. 326.
1890. Phylloporina variolata. Ulrich, Geol. Sur. Illinois, VIII, p. 639.
Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

Pileotrypa Hall. See Eridopora Ulrich.

Pileotrypa bistriata Simpson. See Buskopora bistriata (Hall).

Pileotrypa clivulata Simpson. See Eridopora ? clivulata (Hall).

Pileotrypa denticulata Simpson. See Eridopora denticulata (Hall).

Pileotrypa geometrica Simpson. See Fistulipora geometrica (Hall).

Pileotrypa granifera Simpson. See Fistulipora granifera (Hall).

Pileotrypa pyriformis Simpson. See Buskopora pyriformis (Hall).

PINACOTRYPA Ulrich. Genotype: Fistulipora elegans Rominger.

1890. Pinacotrypa. Ulrich, Geol. Sur. Illinois, VIII, p. 384.
1889. Pinacotrypa. (Ulrich, in press), Miller, North American Geol. Pal., p. 315.
1897. Pinacotrypa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 555.
1897. Fistuliporina. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 555.
1899. Fistuliporina. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 168.
1897. Fistulicella. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 606.
1899. Fistulicella. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 167.

Pinacotrypa elegans (Rominger).

1866. Fistulipora elegans. Rominger, Proc. Acad. Nat. Sci. Philadelphia, p. 122.
1890. Pinacotrypa elegans. Ulrich, Geol. Sur. Illinois, VIII, p. 385.

Pinacotrypa elegans (Rominger)—Continued.

1898. Pinacotrypa elegans. Whiteaves, Contr. Canadian Pal., I, p. 381.

1879. Fistulipora proporoides. Nicholson, Pal. Tabulate Corals, p. 310, fig. 41, pl. xv, 2, *2a*.

Hamilton: Hamburg and Canandaigua, New York.

Obs. Some of the Hamilton forms described by Hall will undoubtedly prove to be synonyms of this species.

Pinacotrypa marginata Whiteaves.

1892. Pinacotrypa marginata. Whiteaves, Contr. Canadian Pal., I, p. 278, pl. xxxvi, 1–*1b*.

Devonian [Hamilton?]: Lake Winnepegosis, Manitoba.

Pinacotrypa operculata (Hall and Simpson).

1887. Lichenalia operculata. Hall and Simpson, Pal. New York, VI, p. 205.

1888. Lichenalia operculata. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. xv, 7; Forty-first Ann. Rep. New York State Museum, pl. xv, 7.

1897. Fistulipora operculata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxii, 13.

Hamilton: York and near Le Roy, New York.

Pinacotrypa plana (Hall).

1883. Thallostigma plana. Hall, Trans. Albany Institute, X, p. 187 (abstract, 1881, p. 187).

1884. Thallostigma plana. Hall, Rep. State Geologist New York for the year 1883, p. 30.

1887. Fistulipora plana. Hall and Simpson, Pal. New York, VI, p. 215, pl. lviii, 19, 20.

1897. Fistulicella plana. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxii, 4.

1899. Fistulicella plana. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 167, fig. 60.

Hamilton: Darien Center and Eighteen-Mile Creek, New York.

Pinacotrypa serrulata (Hall).

1883. Thallostigma serrulata. Hall, Trans. Albany Institute, X, p. 185 (abstract, 1881, p. 185).

1884. Thallostigma serrulata. Hall, Rep. State Geologist New York for the year 1883, p. 20.

1887. Fistulipora serrulata. Hall and Simpson, Pal. New York, VI, p. 214, pl. lviii, 6–8.

1897. Fistuliporina serrulata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxi, 15.

Hamilton: West Bloomfield, New York.

Pinacotrypa stellata (Hall).

1883. Lichenalia stellata. Hall, Trans. Albany Institute, X, p. 183 (abstract, 1881, p. 183).

1884. Lichenalia stellata. Hall, Rep. State Geologist New York for the year 1883, p. 33.

1887. Lichenalia stellata. Hall and Simpson, Pal. New York, VI, p. 195, pl. lviii, 15, 16.

1897. Fistuliporina stellata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxi, 9.

1898. Lichenalia stellata. Whiteaves, Contr. Canadian Pal., I, p. 380.

1899. Lichenalia stellata. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 171, fig. 66 A.

Hamilton: West Bloomfield and Eighteen-Mile Creek, New York.

Pinacotrypa variapora (Hall).

1883. Thallostigma variapora. Hall, Trans. Albany Institute, X, p. 184 (abstract, 1881, p. 184).

1884. Thallostigma variapora. Hall, Rep. State Geologist New York for the year 1883, p. 18.

1887. Fistulipora variapora. Hall and Simpson, Pal. New York, VI, p. 210, pl. lviii, 9–14.

1897. Fistuliporina variopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxi, 10.

1898. Fistulipora variapora. Whiteaves, Contr. Canadian Pal., I, p. 380.

Hamilton: West Williams, Ontario; York and shore of Lake Canandaigua, New York.

Pinnaporella Simpson (1895). See Ptiloporina Hall.

Pinnaporella Simpson (1897). See Ptiloporella Hall.

Pinnaporina Simpson. See Ptiloporina Hall.

Pinnaporina pinnata Simpson. See Ptiloporina pinnata (Hall).

PINNATOPORA Vine. Genotype: Glauconome elegans Young and Young.

1883. Pinnatopora. Vine, Rep. Brit. Assoc. Adv. Sci., LIII, p. 191.

1884. Pinnatopora. Vine, Quar. Jour. Geol. Soc. London, XL, p. 330.

1884. Pinnatopora. Shrubsole, Proc. Chester Soc. Nat. Hist., p. 100.

1885. Pinnatopora. Vine, Proc. Yorkshire Geol. Polyt. Soc., IX, p. 78.

1886. Pinnatopora. Ulrich, Contr. American Pal., I, p. 6.

1890. Pinnatopora. Ulrich, Geol. Sur. Illinois, VIII, pp. 397, 614.

1896. Pinnatopora. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 283.

Glauconome of various authors.

1887. Glauconome (not of Goldfuss or Lonsdale). Hall and Simpson, Pal. New York, VI, p. xxiv.

1887. Glauconome (not of Goldfuss or Lonsdale). Foerste, Bull. Sci. Lab. Denison Univ., II, p. 78.

1897. Glauconome (not of Goldfuss or Lonsdale). Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 524.

1899. Glauconome (not of Goldfuss or Lonsdale). Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 176.

Pinnatopora bellula Ulrich.

1890. Pinnatopora bellula. Ulrich, Geol. Sur. Illinois, VIII, p. 619, pl. lxvi, 8–8*b*.

Base of Coal Measures: Seville, Illinois.

Pinnatopora carinata (Hall).

1883. Glauconome carinata. Hall, Trans. Albany Institute, X, p. 196 (abstract, 1881, p. 196).

1884. Glauconome carinata. Hall, Rep. State Geologist New York for the year 1883, p. 60.

1887. Glauconome carinata. Hall and Simpson, Pal. New York, VI, p. 273, pl. lxvi, 23, 24.

1897. Glauconome carinata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. viii, 14, 15.

1899. Glauconome carinata. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 177, fig. 74.

Hamilton: Eighteen-Mile Creek, Erie and Ontario counties, New York.

Pinnatopora conferta Ulrich.

1890. Pinnatopora conferta. Ulrich, Geol. Sur. Illinois, VIII, p. 618, pl. lvi, 5, pl. lxvi, 6.

1894. Pinnatopora conferta. Keyes, Missouri Geol. Sur., V, p. 31.

Keokuk: Keokuk and Bentonsport, Iowa; Jersey County, Illinois.

Pinnatopora curvata Ulrich.

1888. Pinnatopora curvata. Ulrich, Bull. Denison Univ., IV, p. 76, pl. xiv, 4.

Waverly: Richfield, Ohio.

Pinnatopora flexuosa Ulrich.

1890. Pinnatopora flexuosa. Ulrich, Geol. Sur. Illinois, VIII, p. 617, pl. lxvi, 4–4*c*.

Keokuk: Kings Mountain, Kentucky.

Pinnatopora intermedia Ulrich.

1888. Pinnatopora intermedia. Ulrich, Bull. Denison Univ., IV, p. 74, pl. xiv, 1.

Waverly: Richfield, Ohio.

Pinnatopora minor Ulrich.

1888. Pinnatopora minor. Ulrich, Bull. Denison Univ., IV, p. 77, pl. xiv, 7, 7*a*.

Waverly: Richfield, Ohio.

Pinnatopora nereidis (White).

1874. Glauconome nereidis. White, Prel. Rep. Invert. Foss., p. 18.

1877. Glauconome nereidis. White, Wheeler's U. S. Geol. Sur., IV, p. 105, pl. vii, 5*a–e*.

Carboniferous: Confluence White Mountain and Black rivers, Arizona.

Pinnatopora nodata (Hall).

1883. Glauconome nodata. Hall, Trans. Albany Institute, X, p. 160 (abstract, 1881, p. 18).

1883. Glauconome nodata. Hall, Rep. State Geologist New York for the year 1882, pl. xxvi, 13, 14.

1887. Glauconome nodata. Hall and Simpson, Pal. New York, VI, p. 102, pl. xxxiii, 13, 14.

Upper Helderberg: Near Le Roy, New York.

Pinnatopora simulatrix Ulrich.

1888. Pinnatopora simulatrix. Ulrich, Bull. Denison Univ., IV, p. 75, pl. xiv, 3.

Waverly: Richfield, Ohio.

Pinnatopora sinuosa (Hall).

1883. Glauconome sinuosa. Hall, Trans. Albany Institute, X, p. 160 (abstract, 1881, p. 18).

1883. Glauconome sinuosa. Hall, Rep. State Geologist New York for the year 1882, pl. xxvi, 11, 12.

1887. Glauconome sinuosa. Hall and Simpson, Pal. New York, VI, p. 101, pl. xxxiii, 11, 12.

1897. Glauconome sinuosa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. viii, 8–10.

Upper Helderberg: Near Buffalo, New York.

Pinnatopora striata Ulrich.

1890. Pinnatopora striata Ulrich. Geol. Sur. Illinois, VIII, p. 617, pl. lxvi, 4*d*.

Keokuk: Bentonsport, Iowa.

Pinnatopora subangulata Ulrich.

1888. Pinnatopora subangulata. Ulrich, Bull. Denison Univ., IV, p. 76, pl. xiv, 2.

Waverly: Cuyahoga Falls, Ohio.

Pinnatopora tenuiramosa Ulrich.

1888. Pinnatopora tenuiramosa. Ulrich, Bull. Denison Univ., IV, p. 79.

1890. Pinnatopora tenuiramosa. Ulrich, Geol. Sur. Illinois, VIII, p. 619, pl. lxvi, 7.

Waverly: Richfield, Ohio.

Pinnatopora tenuistriata (Hall).

1883. Glauconome tenuistriatus. Hall, Trans. Albany Institute, X, p. 160 (abstract, 1881, p. 19).

1883. Glauconome tenuistriatus. Hall, Rep. State Geologist New York for the year 1882, pl. xxvi, 15–19.

1887. Glauconome tenuistriatus. Hall and Simpson, Pal. New York, VI, p. 102, pl. xxxiii, 15–19.

1897. Glauconome tenuistriatus. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. viii, 11–13.

Upper Helderberg: Near Buffalo, New York.

Pinnatopora trilineata (Meek).

1872. Glauconome trilineata. Meek, Pal. Eastern Nebraska, p. 157, pl. vii, 4*a–d*.

1890. Pinnatopora trilineata. Ulrich, Geol. Sur. Illinois, VIII, p. 620, pl. lvi, 6.

1894. Pinnatopora trilineata. Keyes, Missouri Geol. Sur., V, p. 31.

Upper Coal Measures: Nebraska City, Nebraska; Sangamon County, Illinois; Kansas City, Missouri.

Pinnatopora vinei Ulrich.

1888. Pinnatopora vinei. Ulrich, Bull. Denison Univ., IV, p. 77, pl. xiv, 5.

1890. Pinnatopora vinei. Ulrich, Geol. Sur. Illinois, VIII, p. 616, pl. lxvi, 5–5*b*.

1894. Pinnatopora vinei. Keyes, Missouri Geol. Sur., V, p. 31.

Waverly: Richfield, Ohio.

Keokuk: Keokuk, Iowa; Kings Mountain, Kentucky.

Pinnatopora whitei Foerste.

1887. Glauconome whitii. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 78.

1887. Pinnatopora whitii. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 87, pl. vii, 4*a–c*.

Coal Measures: Flint Ridge, Ohio.

Pinnatopora youngi Ulrich.

1888. Pinnatopora youngi. Ulrich, Bull. Denison Univ., IV, p. 78, pl. xiv, 6, 6*a*.

1890. Pinnatopora youngi. Ulrich, Geol. Sur. Illinois, VIII, p. 615, pl. lxvi, 3.

1894. Pinnatopora youngi. Keyes, Missouri Geol. Sur., V, p. 31.

Waverly: Richfield and Lodi, Ohio.

Keokuk: Keokuk, Iowa; King's Mountain, Kentucky.

POLYPORA McCoy. Genotype: Polypora dendroides McCoy.

1845. Polypora. McCoy, Synopsis Carbon. Foss. Ireland, p. 206.

1850. Polypora. D'Orbigny, Prodr. de Paleontologie, I, p. 45.

1852. Polypora. Hall, Pal. New York, II, p. 167.

1854. Polypora. McCoy, Brit. Pal. Foss., p. 115.

1860. Polypora. Eichwald, Lethæa Rossica, I, p. 372.

1874. Polypora. Nicholson, Pal. Province, Ontario, p. 98.

1875. Polypora. Etheridge, Jun., Proc. Geol. Assoc., IV, p. 120.

1881. Polypora. Vine, Rep. British Assoc. Adv. Sci., p. 170.

1882. Polypora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 150.

1883. Polypora. Claypole, Quar. Jour. Geol. Soc. London, XXXIX, p. 31.

1885. Polypora. Hall, Rep. State Geologist New York for the year 1884, p. 35.

1885. Polypora. Vine, Proc. Yorkshire Geol. Polyt. Soc., IX, p. 86.

1885. Polypora. Waagen and Pichl, Pal. Indica, Ser. XIII, pp. 774, 781.

POLYPORA McCoy—Continued.

1886. Polypora. Ulrich, Contr. American Pal., I, p. 5.
1887. Polypora. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 82.
1887. Polypora. Hall and Simpson, Pal. New York, VI, p. xxiv.
1889. Polypora. Miller, North American Geol. Pal., p. 315.
1890. Polypora. Ulrich, Geol. Sur. Illinois, VIII, pp. 396, 585.
1894. Polypora. Počta, Syst. Sil. Bohême, VIII, t. I, p. 84.
1895. Polypora. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 699, 724; Forty-seventh Ann. Rep. New York State Museum, pp. 893, 918.
1895. Polypora. Whidborne, Devon. Fauna England, (Pal. Soc. Pub., XLIX), II, Part 4, p. 174.
1896. Polypora. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 282.
1897. Polypora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 502, 520.
1899. Polypora. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 162.
1895. Polyporella. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 700, 725; Forty-seventh Ann. Rep. New York State Museum, pp. 894, 919.
1897. Polyporella. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 502, 520.
1895. Flabelliporella. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 703, 725; Forty-seventh Ann. Rep. New York State Museum, pp. 897, 919.
1897. Flabelliporella. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894; pp. 502, 521.
1876. Protoretepora. De Koninck, Rech. sur les Foss. Pal. de la Nouv. Galles du Sud, III, p. 176; 1898, Engl. translation, Mem. Geol. Sur. New South Wales, Pal. No. 6, p. 136.

Polypora aculeata (Hall).

1883. Fenestella aculeata. Hall, Trans. Albany Institute, X, p. 163 (abstract, 1881, p. 21).
1883. Fenestella (Polypora) aculeata. Hall, Rep. State Geologist New York for the year 1882, pl. xxviii, 5–7.
1886. Fenestella (Polypora) aculeata. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xl, 6–11.
1887. Fenestella (Polypora) aculeata. Hall and Simpson, Pal. New York, VI, p. 157, pl. xxxv, 5–7, pl. xl, 6–11.
Hamilton: Falls of the Ohio.

Polypora albionensis Spencer. Recognizable?

1884. Polypora (Fenestella?) albionensis. Spencer, Trans. St. Louis Acad. Sci. IV, p. 605, pl. vii, 5, 5*a*.
1884. Polypora (Fenestella?) albionensis. Spencer, Bull. Museum Univ. State Missouri, I, p. 55, pl. vii, 5, 5*a*.
Niagara: Six miles east of Hamilton, Ontario.

Polypora approximata Ulrich.

1859. Polypora biarmica (not of Keyserling). Prout, Trans. St. Louis Acad. Sci., I, p. 450.
1890. Polypora approximata. Ulrich, Geol. Sur. Illinois, VIII, p. 599, pl. lxi, 5, 5*a*.
Chester: Chester, Illinois; Sloans Valley and Litchfield, Kentucky.

Polypora arkonensis Miller.

1874. Polypora tuberculata (not of Prout). Nicholson, Geol. Mag., new ser., I, p. 162, pl. ix, 20.

1874. Polypora tuberculata (not of Prout). Nicholson, Pal. Province Ontario, p. 100, fig. 37*a–c*.

1883. Polypora arkonensis. Miller, American Pal. Foss., edition 2, p. 292.

1898. Polypora Arkonensis. Whiteaves, Contr. Canadian Pal., I, p. 379.

Hamilton: Arkona, Ontario.

Polypora arta (Hall).

1879. Fenestella Arta. Hall, Thirty-second Ann. Rep. New York State Museum, p. 163 (reprint, 1880, p. 25).

1883. Fenestella Arta. Hall, Rep. State Geologist New York for the year 1882, pl. xviii, 4–9 (in part).

1887. Fenestella (Polypora) Arta. Hall and Simpson, Pal. New York, VI, p. 63, pl. xviii, 4–7.

1888. Fenestella (Polypora) Arta. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. xiv, 1–3; Forty-first Ann. Rep. New York State Museum, pl. xiv, 1–3.

Lower Helderberg: Catskill Creek, New York.

Polypora aspectans (Hall).

1884. Fenestella aspectus. Hall, Thirty-sixth Ann. Rep. New York State Museum, p. 59.

1885. Polypora aspectans. Hall, Rep. State Geologist New York for the year 1884, pl. i, 4.

1887. Fenestella (Polypora) aspectans. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 65.

1888. Fenestella (Polypora) aspectans. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. xiii, 10–14; Forty-first Ann. Rep. New York State Museum, pl. xiii, 10–14.

1897. Polypora aspectans. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. i, 12, 13.

Hamilton: Bellona, New York.

Polypora biarmica Prout (not of Keyserling). See Polypora approximata Ulrich.

Polypora biseriata Ulrich.

1890. Polypora biseriata. Ulrich, Geol. Sur. Illinois, VIII, p. 592, fig. 5*d* (p. 315), pl. lx, 4–4*b*.

1894. Polypora biseriata (?). Keyes, Missouri Geol. Sur., V, p. 29.

Warsaw: Warsaw and Monroe County, Illinois; Barrett Station, Missouri (Keyes).

Polypora blandida Ulrich.

1886. Polypora blandida. Ulrich, Contr. American Pal., I, p. 18, pl. ii, 3, 3*a*.

Hamilton: Falls of the Ohio.

Polypora brevisulcata (Hall).

1883. Fenestella brevisulcata. Hall, Trans. Albany Institute, X, p. 168 (abstract, 1881, p. 26).

1886. Fenestella (Polypora) brevisulcata. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xl, 12–15.

1887. Fenestella (Polypora) brevisulcata. Hall and Simpson, Pal. New York, VI, p. 168, pl. xl, 12–15.

Upper Helderberg: Walpole, Ontario.

Polypora burlingtonensis Ulrich.

1890. Polypora burlingtonensis. Ulrich, Geol. Sur. Illinois, VIII, p. 587, pl. lix, 2, *2a*.

Burlington: Burlington, Iowa; Henderson County, Illinois.

Polypora carinella (Hall and Simpson).

1883. Fenestella (Polypora) n. sp. (?). Hall, Rep. State Geologist New York for the year 1882, pl. xxxiii, 1, 2.

1887. Fenestella (Polypora) carinella. Hall and Simpson, Pal. New York, VI, p. 153, pl. xlii, 1, 2.

Upper Helderberg: Near Buffalo, New York.

Polypora celsipora (Hall).

1883. Fenestella celsipora. Hall, Trans. Albany Institute, X, p. 165 (abstract, 1881, p. 24).

1883. Fenestella (Polypora) celsipora. Hall, Rep. State Geologist New York for the year 1882, pl. xxxiii, 5–8, ? 9, 10.

1886. Fenestella (Polypora) celsipora. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xli, 16–22, pl. xlii, 5–10.

1887. Fenestella (Polypora) celsipora. Hall and Simpson, Pal. New York, VI, p. 150, pl. xli, 16–22, pl. lii, 5–10.

Upper Helderberg: Walpole, Ontario.

Polypora celsipora-minima (Hall).

1883. Fenestella celsipora var. minima. Hall, Trans. Albany Institute, X, p. 166 (abstract, 1881, p. 24).

1883. Fenestella (Polypora) celsipora. Hall, Rep. State Geologist New York for the year 1882, pl. xxviii, 1–4.

1886. Fenestella (Polypora) celsipora var. minima. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xli, 11–13.

1887. Fenestella (Polypora) celsipora var. minima. Hall and Simpson, Pal. New York, VI, p. 151, pl. xxxv, 1–4, pl. xli, 11–13.

Hamilton: Falls of the Ohio.

Polypora celsipora-minor (Hall).

1883. Fenestella celsipora var. minor. Hall, Trans. Albany Institute, X, p. 166 (abstract, 1881, p. 24).

1886. Fenestella (Polypora) celsipora var. minor. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xli, 14, 15.

1887. Fenestella (Polypora) celsipora var. minor. Hall and Simpson, Pal. New York, VI, p. 151, pl. xli, 14, 15.

Upper Helderberg: Walpole, Ontario.

Polypora cestriensis Ulrich.

1890. Polypora cestriensis. Ulrich, Geol. Sur. Illinois, VIII, p. 594, pl. lv, 4–4*b*, pl. lx, 7–7*c*.

1894. Polypora cestriensis. Keyes, Missouri Geol. Sur., V, p. 29.

Chester: Chester, Kaskaskia, and near Anna, Illinois; Litchfield and Sloans Valley, Kentucky.

Polypora compacta (Hall).

1879. Fenestella compacta. Hall, Thirty-second Ann. Rep. New York State Museum, p. 163 (reprint, 1880, p. 25).

1883. Fenestella compacta. Hall, Rep. State Geologist New York for the year 1882, pl. xviii, 1–3.

1887. Fenestella (Polypora) compacta. Hall and Simpson, Pal. New York, VI, p. 63, pl. xviii, 1–3, pl. xxii, 4, 5.

Polypora compacta (Hall)—Continued.

1883. Fenestella (Hemitrypa) Nervia (in part). Hall, Rep. State Geologist New York for the year 1882, pl. xxii, 1–3.
Lower Helderberg: Clarksville, New York.

Polypora complanata Ulrich.

1890. Polypora complanata. Ulrich, Geol. Sur. Illinois, VIII, p. 597, pl. lx, 6–6*c*.
Chester: Chester, Illinois.

Polypora compressa (Hall).

1879. Fenestella compressa. Hall, Thirty-second Ann. Rep. New York State Museum, p. 164 (reprint, 1880, p. 26).
1887. Fenestella (Polypora) compressa. Hall and Simpson, Pal. New York, VI, p. 61, pl. xviii, 14–18.
1883. Fenestella planiramosa. Hall, Rep. State Geologist New York for the year 1882, pl. xviii, 14–18.
Lower Helderberg: Clarksville, New York.

Polypora conferta (Hall).

1883. Fenestella conferta. Hall, Trans. Albany Institute, X, p. 63 (abstract, 1879, p. 7).
1882. Fenestella conferta. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 252.
Niagara: Waldron, Indiana.

Polypora corticosa Ulrich.

1890. Polypora corticosa. Ulrich, Geol. Sur. Illinois, VIII, p. 596, pl. lx, 5–5*c*, pl. lxi, 1.
1894. Polypora corticosa. Keyes, Missouri Geol. Sur., V, p. 30.
Chester: Chester, Illinois.

Polypora crassa Ulrich.

1890. Polypora crassa. Ulrich, Geol. Sur. Illinois, VIII, p. 603, pl. lxi, 8, 8*a*.
Upper Coal Measures: Sugar Creek, Sangamon County, Illinois.

Polypora crebescens (Hall).

1886. Fenestella crebescens. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xlv, 20, 21.
1887. Fenestella (Polypora) crebescens. Hall and Simpson, Pal. New York, VI, p. 170, pl. xlv, 20, 21.
Upper Helderberg: Western New York.

Polypora cultellata Hall. See Polypora shumardi Prout.

Polypora cylindracea (Hall).

1883. Fenestella cylindracea. Hall, Trans. Albany Institute, X, p. 166 (abstract, 1881, p. 24).
Upper Helderberg: Near Buffalo, New York.

Polypora distans (Hall).

1883. Fenestella distans. Hall, Trans. Albany Institute, X, p. 165 (abstract, 1881, p. 23).
1883. Fenestella (Polypora) distans. Hall, Rep. State Geologist New York for the year 1882, pl. xxx, 2–5, ? 6–10, 15, 16.
1886. Fenestella distans. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xliv, 7.
1887. Fenestella (Polypora) distans. Hall and Simpson, Pal. New York, VI, p. 161, pl. xxxvii, 2–10, 15, 16, pl. xliv, 7.
Upper Helderberg: Near Buffalo, New York.

Polypora distincta Ulrich.

1890. Polypora distincta. Ulrich, Geol. Sur. Illinois, VIII, p. 603, pl. lxi, 7, *7a*.

Upper Coal Measures: Springfield, Illinois.

Polypora elegans ? Hall. See Polypora idothea Hall.

Polypora elongata (Hall).

1883. Fenestella (Polypora) elongata. Hall, Rep. State Geologist New York for the year 1882, pl. xxxiii, 3, 4.

1887. Fenestella (Polypora) elongata. Hall and Simpson, Pal. New York, VI, p. 153, pl. xlii, 3, 4.

Upper Helderberg: Onondaga Valley, New York.

Polypora eudora (Hall).

1879. Fenestella Eudora. Hall, Thirty-second Ann. Rep. New York State Museum, p. 165 (reprint, 1880, p. 27).

1883. Fenestella Eudora. Hall, Rep. State Geologist New York for the year 1882, pl. xix, 3–10, ? 12.

1887. Fenestella (Polypora) Eudora. Hall and Simpson, Pal. New York, VI, p. 58, pl. xix, 3, 4, ? 5, 6–10.

Lower Helderberg: Clarksville, New York.

Polypora fastuosa Foerste (De Koninck?).

1887. Polypora fastuosa De Koninck. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 82, pl. vii, *9a–d*.

Coal Measures: Flint Ridge and Bald Hill, Ohio.

Obs. It is very unlikely that Foerste's form is the species which De Koninck described under the name P. fastuosa.

Polypora fistulata (Hall).

1884. Fenestella fistulata. Hall, Thirty-sixth Ann. Rep. New York State Museum, p. 59.

1885. Fenestella fistulata. Hall, Rep. State Geologist New York for the year 1884, pl. i, 6.

1887. Fenestella (Polypora) fistulata. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 64.

1888. Fenestella (Polypora) fistulata. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. xii, 1–16; Forty-first Ann. Rep. New York State Museum, pl. xii, 1–16.

1895. Polyporella fistulata. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, p. 700; Forty-seventh Ann. Rep. New York State Museum, p. 894.

1897. Polyporella fistulata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. i, 9, 10.

Hamilton: Genesee and Erie counties, New York; West Williams, Ontario.

Polypora flabelliformis (Hall).

1883. Fenestella flabelliformis. Hall, Trans. Albany Institute, X, p. 165 (abstract 1881, p. 23).

1883. Fenestella (Polypora) flabelliformis. Hall, Rep. State Geologist New York for the year 1882, pl. xxx, 11, 12.

1887. Fenestella (Polypora) flabelliformis. Hall and Simpson, Pal. New York, VI, p. 161, pl. xxxvii, 11, 12.

Upper Helderberg: Onondaga Valley, New York. In the Trans. Albany Institute, X, p. 165, the locality is given as Shortsville, near Manchester, New York.

Polypora ? gracilis Prout.

1860. Polypora gracilis. Prout, Trans. St. Louis Acad. Sci., I, p. 580.
1866. Polypora gracilis. Prout, Geol. Sur. Illinois, II, p. 422, pl. xxi, 1, 1*a*.
1888. Polypora gracilis. Ulrich, Bull. Denison Univ., IV, p. 73.
1890. Polypora ? gracilis. Ulrich, Geol. Sur. Illinois, VIII, p. 590, pl. lxi, 10, 10*a*.
1894. Polypora gracilis. Keyes, Missouri Geol. Sur., V, p. 28.
Keokuk: Warsaw and Nauvoo, Illinois; Keokuk, Iowa; Kings Mountain, Kentucky.
Waverly: Richfield and Sciotoville, Ohio.

Polypora granilinea (Hall).

1883. Fenestella granilinea. Hall, Trans. Albany Institute, X, p. 168 (abstract, 1881, p. 27).
1886. Fenestella (Polypora) granilinea. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xl, 20–23.
1887. Fenestella (Polypora) granilinea. Hall and Simpson, Pal. New York, VI, p. 154, pl. xl, 20–23.
Upper Helderberg: Walpole, Ontario.

Polypora halliana Prout.

1860. Polypora Halliana. Prout, Trans. St. Louis Acad. Sci., I, p. 580.
1866. Polypora Halliana. Prout, Geol. Sur. Illinois, II, p. 421, pl. xxi, 4–4*b*.
1876–7. Protoretepora (Polypora) Halliana. De Koninck, Rech. sur les Foss. Pal. de la Nouv. Galles du Sud, III, p. 179; 1898, English translation, Mem. Geol. Sur. New South Wales, Pal. No. 6, p. 137.
1890. Polypora halliana. Ulrich, Geol. Sur. Illinois, VIII, p. 587, pl. lix, 5–5*c*.
1894. Polypora halliana. Keyes, Missouri Geol. Sur., V, p. 28.
Keokuk and Warsaw: Warsaw, Illinois, and Keokuk, Iowa.

Polypora Halliana Nicholson (not Prout) = ?

1874. Polypora Halliana. Nicholson, Pal. Province Ontario, p. 99.
Upper Helderberg: Wainfleet, Ontario.

Polypora Hamiltonensis Prout. See Reteporina hamiltonensis (Prout).

Polypora hexagonalis (Hall).

1883. Fenestella hexagonalis. Hall, Trans. Albany Institute, X, p. 169 (abstract, 1881, p. 27).
1883. Fenestella (Polypora) hexagonalis. Hall, Rep. State Geologist New York for the year 1882, pl. xxxi, 14–20.
1887. Fenestella (Polypora) hexagonalis. Hall and Simpson, Pal. New York, VI, p. 164, pl. xxxiii, 14–20.
Upper Helderberg: Walpole, Ontario.

Polypora hexagonalis-foraminulosa (Hall).

1883. Fenestella hexagonalis var. foraminulosa. Hall, Trans. Albany Institute, X, p. 169 (abstract, 1881, p. 27).
1883. Fenestella (Polypora) hexagonalis var. foraminulosa. Hall, Rep. State Geologist New York for the year 1882, pl. xxxii, 16–20.
1887. Fenestella (Polypora) hexagonalis var. foraminulosa. Hall and Simpson, Pal. New York, VI, p. 165, pl. xxxix, 16–20.
Upper Helderberg: Walpole, Ontario.

Polypora idothea (Hall).

1874. Polypora elegans (?). Hall, Twenty-sixth Ann. Rep. New York State Museum, p. 97.
1879. Fenestella Idothea. Hall, Thirty-second Ann. Rep. New York State Museum, p. 166 (reprint, 1880, p. 28).

Polypora idothea (Hall)—Continued.

1883. Fenestella Idothea. Hall, Rep. State Geologist New York for the year 1882, pl. xix, 14, 15.

1887. Fenestella (Polypora) Idothea. Hall and Simpson, Pal. New York, VI, p. 60, pl. xix, 14, 15.

Lower Helderberg: Clarksville, New York.

Polypora imbricata Prout. Not recognizable.

1866. Polypora imbricata. Prout, Trans. St. Louis Acad. Sci., II, p. 412.

"Mountain Limestone:" Indiana.

Polypora impressa Ulrich.

1888. Polypora impressa. Ulrich, Bull. Denison Univ., IV, p. 72, pl. xiii, 8, 8*a*.

Waverly: Richfield, Ohio.

Polypora incepta Hall.

1852. Polypora incepta. Hall, Pal. New York, II, p. 167, pl. xlD, 5*a–f*.

1890. Polypora incepta (Hall?). Ulrich, Geol. Sur. Illinois, VIII, p. 358, pl. lv, 1.

Niagara: Lockport and Rochester, New York; Waldron, Indiana.

Polypora intermedia Prout.

1858. Polypora intermedia. Prout, Trans. St. Louis Acad. Sci., I, p. 272, pl. xv, 5, 5*a*.

Hamilton: Falls of the Ohio.

Polypora lævistriata (Hall).

1883. Fenestella (Polypora) lævistriata. Hall, Rep. State Geologist New York for the year 1882, pl. xxviii, 14–16.

1887. Fenestella (Polypora) lævistriata. Hall and Simpson, Pal. New York, VI, p. 159, pl. xxxv, 14–16.

Hamilton: Falls of the Ohio.

Polypora largissima (Hall).

1883. Fenestella largissima. Hall, Trans. Albany Institute, X, p. 164 (abstract, 1881, p. 22).

1883. Fenestella (Polypora) largissima. Hall, Rep. State Geologist New York for the year 1882, pl. xxvii, 8, 9.

1887. Fenestella (Polypora) largissima. Hall and Simpson, Pal. New York, VI, p. 156, pl. xxxiv, 8, 9.

Upper Helderberg: Central New York.

Polypora latitruncata (Hall).

1884. Fenestella latitruncata. Hall, Thirty-sixth Ann. Rep. New York State Museum, p. 58.

1887. Fenestella (Polypora) latitruncata. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 68.

1888. Fenestella (Polypora) latitruncata. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. xiii, 1–9; Forty-first Ann. Rep. New York State Museum, pl. xiii, 1–9.

Hamilton: Darien, New York; West Williams, Ontario.

Polypora levinodata (Hall).

1883. Fenestella levinodata. Hall, Trans. Albany Institute, X, p. 169 (abstract, 1881, p. 28).

1883. Fenestella (Polypora) levinodata. Hall, Rep. State Geologist New York for the year 1882, pl. xxxiii, 12–15.

1886. Fenestella (Polypora) levinodata. Hall and Simpson, Pal. New York, VI, p. 169, pl. xlii, 12–15.

Hamilton: Falls of the Ohio.

Polypora lilæa Hall.

1874. Polypora Lilia. Hall, Twenty-sixth Ann. Rep. New York State Museum, p. 96.

1879. Fenestella (Polypora) Lilæa. Hall, Thirty-second Ann. Rep. New York State Museum, p. 165 (reprint, 1880, p. 27).

1883. Fenestella (Polypora) Lilæa. Hall, Rep. State Geologist New York for the year 1882, pl. xviii, 19, 20.

1887. Fenestella (Polypora) Lilæa. Hall and Simpson, Pal. New York, VI, p. 62, pl. xviii, 19–22.

1883. Retepora n. sp. Hall, Rep. State Geologist New York for the year 1882, pl. xviii, 21, 22.

Lower Helderberg: Schoharie and Clarksville, New York.

Polypora maccoyana Ulrich.

1890. Polypora maccoyana. Ulrich, Geol. Sur. Illinois, VIII, p. 588, pl. lix, 3–3*d*.

1894. Polypora maccoyana. Keyes, Missouri Geol. Sur., V, p. 28.

Keokuk: Nauvoo and near Plymouth, Illinois; Keokuk and Bentonsport, Iowa.

Polypora manitobensis Whiteaves.

1892. Polypora (porosa ? var.) Manitobensis. Whiteaves, Contr. Canadian Pal., I, p. 280, pl. xxxvi, 5.

Devonian (Hamilton ?): Lake Manitoba, Manitoba.

Polypora marginata Geinitz (not McCoy). See Polypora submarginata Meek.

Polypora mexicana Prout.

1858. Polypora Mexicana. Prout, Trans. St. Louis Acad. Sci., I, p. 270, pl. xvi, 2–2*b*.

1876–7. Protoretepora (Polypora) mexicana. De Koninck, Rech. sur les Foss. Pal. de la Nouv. Galles du Sud, III, p. 179; 1898, Engl. translation, Mem. Geol. Sur. New South Wales, Pal. No. 6, p. 137.

Permian: Jornada de Muerto, New Mexico.

Polypora multiplex (Hall).

1884. Fenestella multiplex. Hall, Thirty-sixth Ann. Rep. New York State Museum, p. 57.

1887. Fenestella (Polypora) multiplex. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 66.

1888. Fenestella (Polypora) multiplex. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. xi, 12–16; Forty-first Ann. Rep. New York State Museum, pl. xi, 12–16.

1899. Polypora multiplex. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 162, fig. 51A.

Hamilton: Moscow, Alden, and Eighteenmile Creek, New York.

Polypora mutabilis (Hall).

1883. Fenestella mutabilis. Hall, Trans. Albany Institute, X, p. 167 (abstract, 1881, p. 25).

1883. Fenestella (Polypora) mutabilis. Hall, Rep. State Geologist New York for the year 1882, pl. xxxii, 12–15.

1887. Fenestella (Polypora) mutabilis. Hall and Simpson, Pal. New York, VI, p. 166, pl. xxxix, 12–15.

Upper Helderberg: Walpole, Ontario.

Polypora nexa (Hall).

1883. Fenestella nexa. Hall, Trans. Albany Institute, X, p. 167 (abstract, 1881, p. 25).

1883. Fenestella (Polypora) nexa. Hall, Rep. State Geologist New York for the year 1882, pl. xxxii, 4–9.

1887. Fenestella (Polypora) nexa. Hall and Simpson, Pal. New York, VI, p. 165, pl. xxxix, 4–9.

Upper Helderberg: Walpole, Ontario.

Polypora nodocarinata Ulrich.

1890. Polypora nodocarinata. Ulrich, Geol. Sur. Illinois, VIII, p. 601, pl. lxi, 9, *9a*.

Upper Coal Measures: Crooked Creek, near Centralia, and Macoupin County, Illinois.

Polypora obliqua (Hall and Simpson).

1879. Fenestella Arta (in part). Hall, Thirty-second Ann. Rep. New York State Museum, p. 163 (reprint, 1880, p. 25).

1883. Fenestella arta (in part). Hall, Rep. State Geologist New York for the year 1882, pl. xviii, 8, 9.

1887. Fenestella (Polypora) obliqua. Hall and Simpson, Pal. New York, VI, p. 64, pl. xviii, 8, 9.

1888. Fenestella obliqua. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. xiv, 4; Forty-first Ann. Rep. New York State Museum, pl. xiv, 4.

Lower Helderberg: Catskill, Greene County, New York.

Polypora paxillata (Hall).

1879. Fenestella paxillata. Hall, Thirty-second Ann. Rep. New York State Museum, p. 164 (reprint, 1880, p. 26).

1883. Fenestella papillata (in error). Hall, Rep. State Geologist New York for the year 1882, pl. xviii, 10–12.

1887. Fenestella (Polypora) paxillata. Hall and Simpson, Pal. New York, VI, p. 65, pl. xviii, 10–12.

Lower Helderberg: Clarksville, New York.

Polypora perangulata (Hall).

1883. Fenestella perangulata. Hall, Trans. Albany Institute, X, p. 165 (abstract, 1881, p. 23).

1883. Fenestella (Polypora) perangulata. Hall, Rep. State Geologist New York for the year 1882, pl. xxx, 13, 14.

1887. Fenestella (Polypora) perangulata. Hall and Simpson, Pal. New York, VI, p. 162, pl. xxxvii, 13, 14.

Upper Helderberg: Western New York.

Polypora perundata Hall. See Reteporidra perundata (Hall).

Polypora porosa (Hall).

1883. Fenestella porosa. Hall, Trans. Albany Institute, X, p. 167 (abstract, 1881, p. 26).

1883. Fenestella (Polypora) porosa. Hall, Rep. State Geologist New York for the year 1882, pl. xxxi, 1–6.

1887. Fenestella (Polypora) porosa. Hall and Simpson, Pal. New York, VI, p. 163, pl. xxxviii, 1–6.

Upper Helderberg: Walpole, Ontario.

Polypora propria (Hall).

1883. Fenestella propria. Hall, Trans. Albany Institute, X, p. 164 (abstract, 1881, p. 22).

1883. Fenestella (Polypora) propria. Hall, Rep. State Geologist New York for the year 1882, pl. xxvii, 10–13.

1887. Fenestella (Polypora) propria. Hall and Simpson, Pal. New York, VI, p. 157, pl. xxxiv, 10–13.

Upper Helderberg: Near Buffalo, New York.

Polypora ? psyche Billings.

1874. Polypora Psyche. Billings, Pal. Foss., II, p. 11, figs. 1, 2.

Oriskany (Gaspé Limestone): Indian Cove, Gaspé Bay, Canada.

Polypora pulchella Nicholson.

1874. Polypora pulchella. Nicholson, Geol. Mag., new ser., I, p. 161, pl. ix, 18.

1874. Polypora pulchella. Nicholson, Pal. Province Ontario, p. 99, fig. 35.

Upper Helderberg: Port Colborne, Ontario.

Polypora punctostriata (Hall).

1876. Fenestella punctostriata. Hall, Twenty-eighth Ann. Rep. New York State Museum (documentary edition), pl. xii, 15, 16; ibid. (Museum edition, 1879), p. 125, pl. xii, 15, 16.

1882. Fenestella punctostriata. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 251, pl. xi, 15, 16.

Niagara: Waldron, Indiana.

Polypora quadrangularis (Hall).

1883. Fenestella quadrangularis. Hall, Trans. Albany Institute, X, p. 163 (abstract, 1881, p. 21).

1883. Fenestella (Polypora) quadrangularis. Hall, Rep. State Geologist New York for the year 1882, pl. xxviii, 8–13, pl. xxix, 23, 24.

1886. Fenestella (Polypora) quadrangularis. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xl, 1, 2.

1887. Fenestella (Polypora) quadrangularis. Hall and Simpson, Pal. New York, VI, p. 158, pl. xxxv, 8–13, pl. xxxvi, 23, 24, pl. xl, 1, 2.

Hamilton: Falls of the Ohio.

Polypora radialis Ulrich.

1888. Polypora radialis. Ulrich, Bull. Denison Univ., IV, p. 74.

1890. Polypora radialis. Ulrich, Geol. Sur. Illinois, VIII, p. 591, pl. lx, 1–1*d*.

1894. Polypora radialis. Keyes, Missouri Geol. Sur., V, p. 29.

Waverly: Near Newark, and Richfield, Ohio.

Keokuk: Keokuk, Iowa.

Polypora retrorsa Ulrich.

1890. Polypora retrorsa. Ulrich, Geol. Sur. Illinois, VIII, p. 591, pl. lix, 6–6*d*.

1894. Polypora retrorsa. Keyes, Missouri Geol. Sur., V, p. 29.

Keokuk: Keokuk, Iowa.

Polypora rigida (Hall).

1883. Fenestella rigida. Hall, Trans. Albany Institute, X, p. 164 (abstract, 1881, p. 22).

1883. Fenestella (Polypora) rigida. Hall, Rep. State Geologist New York for the year 1882, pl. xxvii, 1–3.

1887. Fenestella (Polypora) rigida. Hall and Simpson, Pal. New York, VI, p. 155, pl. xxxiv, 1–3.

Upper Helderberg: Thompson's Lake, Albany County, New York.

Polypora rigida Prout. Not recognizable.

1866. Polypora rigida. Prout, Trans. St. Louis Acad. Sci., II, p. 412.

Geological horizon and locality not given.

Polypora robusta (Hall).

1883. Fenestella robusta. Hall, Trans. Albany Institute, X, p. 164 (abstract, 1881, p. 22).

1883. Fenestella (Polypora) robusta. Hall, Rep. State Geologist New York for the year 1882, pl. xxvii, 4–7, pl. xxx, 1, pl. xxxii, 1–3.

1887. Fenestella (Polypora) robusta. Hall and Simpson, Pal. New York, VI, p. 156, pl. xxxiv, 4–7, pl. xxvii, 1–3, pl. xliii, 1, pl. xlvi, 6.

Upper Helderberg: Walpole, Ontario.

Polypora rustica (Hall and Simpson).

1887. Fenestella (Polypora) rustica. Hall and Simpson, Pal. New York, VI, p. 169, pl. xliii, 10–13.

Upper Helderberg: Walpole, Ontario.

Polypora separata (Hall).

1883. Fenestella (Polypora) separata. Hall, Rep. State Geologist New York for the year 1882, pl. xxxii, 10, 11.

1887. Fenestella (Polypora) separata. Hall and Simpson, Pal. New York, VI, p. 166, pl. xxxix, 10, 11.

Upper Helderberg: Walpole, Ontario.

Polypora shumardi Prout.

1858. Polypora Shumardii. Prout, Trans. St. Louis Acad. Sci., I, p. 271, pl. xvi, 3–3*b*.

1876–77. Protoretepora (Polypora) Shumardii. De Koninck, Rech. sur les Foss. Pal. de la Nouv. Galles du Sud, III, p. 179; 1898, Engl. translation, Mem. Geol. Sur. New South Wales, Pal. No. 6, p. 137.

1885. Polypora shumardi. Hall, Rep. State Geologist New York for the year 1884, p. 35, pl. i, 5.

1890. Polypora shumardi. Ulrich, Geol. Sur. Illinois, VIII, p. 586, pl. lv, 2–2*d*.

1883. Fenestella cultellata. Hall, Trans. Albany Institute, X, p. 162 (abstract, 1881, p. 21).

1883. Fenestella (Polypora) cultellata. Hall, Rep. State Geologist New York for the year 1882, pl. (36) xxix, 3–22.

1886. Fenestella (Polypora) cultellata. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xli, 9.

1887. Fenestella (Polypora) cultellata. Hall and Simpson, Pal. New York, VI, p. 160, pl. xxxvi, 3–22, pl. xli, 9.

Hamilton: Falls of the Ohio.

Polypora simulatrix Ulrich.

1890. Polypora simulatrix. Ulrich, Geol. Sur. Illinois, VIII, p. 589, pl. lix, 4–4*b*.

1894. Polypora simulatrix. Keyes, Missouri Geol. Sur., V, p. 28.

Keokuk: Nauvoo, Warsaw, and Henderson County, Illinois; Keokuk and Bentonsport, Iowa.

Polypora spininodata Ulrich.

1890. Polypora spininodata. Ulrich, Geol. Sur. Illinois, VIII, p. 594, pl. lx, 3.

1894. Polypora spininodata. Keyes, Missouri Geol. Sur., V, p. 29.

Warsaw: Warsaw, Illinois.

Polypora spinulifera Ulrich.

1890. Polypora spinulifera. Ulrich, Geol. Sur. Illinois, VIII, p. 598, pl. lxi, 2, 2*a*, 3, 3*a*, 4, 4*a*.

Polypora spinulifera Ulrich—Continued.
1894. Polypora spinulifera. Keyes, Missouri Geol. Sur., V, p. 30.
Chester: Chester and Monroe County, Illinois.
Coal Measures: Montgomery County, Illinois; near Red Oak, Iowa.

Polypora stragula White.
1866. Polypora biarmica (not of Keyserling). Geinitz, Carb. und Dyas in Nebraska, p. 28.
1872. Polypora sp. undet. Meek, Pal. Eastern Nebraska, p. 155.
1874. Polypora stragula. White, Prelim. Rep. Invert. Foss., p. 19.
1877. Polypora stragula. White, Wheeler's U. S. Geol. Sur., IV, p. 108, pl. vii, 4*a*, *b*.
Carboniferous: White Mountains, Arizona (White); Nebraska (Meek).

Polypora striatopora (Hall).
1883. Fenestella striatopora. Hall, Trans. Albany Institute, X, p. 164 (abstract, 1881, p. 23).
1886. Fenestella (Polypora) striatopora. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xl, 16–19.
1887. Fenestella (Polypora) striatopora. Hall and Simpson, Pal. New York, VI, p. 168, pl. xl, 16–19.
1897. Polypora striatopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. i, 11, 14, 15.
Hamilton: Falls of the Ohio.

Polypora ? stricta (Hall and Simpson).
1883. Fenestella Eudora (?). Hall, Rep. State Geologist New York for the year 1882, pl. xix, 1, 2.
1887. Fenestella (Polypora) stricta. Hall and Simpson, Pal. New York, VI, p. 59, pl. xix, 1, 2.
Lower Helderberg: Clarksville, New York.

Polypora submarginata Meek.
1866. Polypora marginata (not of McCoy). Geinitz, Carb. und Dyas in Nebraska, p. 69, pl. v, 11*a*, *b*, 12*a*, *b*.
1872. Polypora submarginata. Meek, Pal. Eastern Nebraska, p. 154, pl. vii, 7*a*, *b*.
1890. Polypora submarginata. Ulrich, Geol. Sur. Illinois, VIII, p. 602, pl. lxi, 6–6*b*.
1894. Polypora submarginata. Keyes, Missouri Geol. Sur., V, p. 30.
Upper Coal Measures: Nebraska City, Nebraska; Macoupin County, La Salle, and Springfield, Illinois; near Red Oak, Iowa.

Polypora submutans (Hall).
1883. Fenestella submutans. Hall, Trans. Albany Institute, X, p. 163 (abstract, 1881, p. 21).
1886. Fenestella (Polypora) submutans. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xl, 3–5.
1887. Fenestella (Polypora) submutans. Hall and Simpson, Pal. New York, VI, p. 167, pl. xl, 3–5.
Hamilton: Falls of the Ohio.

Polypora tantula (Hall).
1883. Fenestella tantulus. Hall, Trans. Albany Institute, X, p. 64 (abstract, 1879, p. 8).
1882. Fenestella tantulus. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 253.
Niagara: Waldron, Indiana.

Polypora tenella Nicholson.

1874. Polypora tenella. Nicholson, Geol. Mag., new ser., I, p. 162, pl. ix, 19*b*.
1874. Polypora tenella. Nicholson, Pal. Province Ontario, p. 100, fig. 36.
Upper Helderberg: Wainfleet, Ontario.

Polypora transversa Ulrich.

1886. Polypora transversa. Ulrich, Contr. American Pal., I, p. 18, pl. ii, 2, 2*a*.
Hamilton: Falls of the Ohio.

Polypora tuberculata Prout.

1858. Polypora tuberculata. Prout, Trans. St. Louis Acad. Sci., I, p. 449, pl. xviii, 3.
1885. Polypora tuberculata. Vine, Proc. Yorkshire Geol. Polyt. Soc., IX, p. 87.
1890. Polypora tuberculata. Ulrich, Geol. Sur. Illinois, VIII, p. 595, pl. lx, 8.
1894. Polypora tuberculata. Keyes, Missouri Geol. Sur., V, p. 30.
Chester: Chester, Illinois; Litchfield, Kentucky.

Polypora tuberculata Nicholson (not Prout). See Polypora arkonensis Miller.

Polypora varia (Hall).

1888. Fenestella varia (Hall). Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. xiv, 10–12; Forty-first Ann. Rep. New York State Museum, pl. xiv, 10–12.
Lower Helderberg: Clarksville, New York.

Polypora varsoviensis Prout.

1858. Polypora varsoviensis. Prout, Trans. St. Louis Acad. Sci., I, p. 237, pl. xv, 3–3*b*.
1890. Polypora varsoviensis. Ulrich, Geol. Sur. Illinois, VIII, p. 593, pl. lx, 2–2*b*.
1891. Polypora Varsouviensis (?). Whitfield, Annals New York Acad. Sci., V, p. 578.
1894. Polypora varsoviensis. Keyes, Missouri Geol. Sur., V, p. 29.
Warsaw: Barretts Station, Missouri; Warsaw, and Monroe County, Illinois.
St. Louis or Chester (Maxville Limestone): Newtonville, Ohio (Whitfield).

Polypora whitei Ulrich.

1890. Polypora whitei. Ulrich, Geol. Sur. Illinois, VIII, p. 600, pl. lxii, 2.
Base of Coal Measures: Seville, Illinois.

Polypora whitei-insculpta Ulrich.

1890. Polypora whitei var. insculpta. Ulrich, Geol. Sur. Illinois, VIII, p. 600, pl. lxii, 1.
1889. Polypora whitei var. eximia (in error for insculpta). (Ulrich, in press), Miller, North American Geol. Pal., p. 317.
Upper Coal Measures: Springfield, Illinois.

Polypora whitei var. eximia Ulrich. See Polypora whitei-insculpta Ulrich.

Polyporella Simpson. See Polypora McCoy.

Polyporella fistulata Simpson. See Polypora fistulata (Hall).

PRASOPORA Nicholson and Etheridge, Jun. Genotype: Prasopora grayæ Nicholson and Etheridge, Jun.

1877. Prasopora. Nicholson and Etheridge, Jun., Ann. Mag. Nat. Hist., ser. 4, XX, p. 38.

PRASOPORA Nicholson and Etheridge, Jun.—Continued.

1879. Prasopora. Nicholson, Pal. Tabulate Corals, p. 324.
1881. Prasopora. Nicholson, Genus Monticulipora, pp. 102, 202.
1882. Prasopora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 153.
1883. Prasopora. Foord, Contr. Micro-Pal. Cambro-Sil., p. 10.
1887. Prasopora. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 170.
1889. Prasopora. Miller, North American Geol. Pal., p. 201.
1890. Prasopora. Ulrich, Geol. Sur. Illinois, VIII, p. 371.
1893. Prasopora. Ulrich, Geol. Minnesota, III, p. 244.
1896. Prasopora (in part). Zittel's Textb. Pal. (Engl. ed.), p. 104.
1896. Prasopora. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 273.
1897. Prasopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 586.

Prasopora affinis Foord.

1883. Prasopora affinis. Foord, Contr. Micro-Pal. Cambro-Sil., p. 12, pl. iii, 2–2*c*.
1890. Prasopora affinis. Ulrich, Geol. Sur. Illinois, VIII, fig. 7*c* (p. 318).
Trenton: Ottawa City, Canada; Cannon Falls and Berne, Minnesota.

Prasopora calycula Ulrich. See Aspidopora calycula (James).

Prasopora conoidea Ulrich.

1886. Prasopora conoidea. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 87.
1893. Prasopora conoidea. Ulrich, Geol. Minnesota, III, p. 249, pl. xvi, 11–15.
1897. Prasopora conica (in error for conoidea). Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 170 (p. 587).
Trenton (Black River): Cannon Falls and St. Paul, Minnesota.

Prasopora contigua Ulrich.

1886. Prasopora contigua. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 87.
1893. Prasopora contigua. Ulrich, Geol. Minnesota, III, p. 249, pl. xvi, 24–26.
1894. Prasopora contigua. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 180.
Trenton (Black River and Trenton): Goodhue and Dakota counties, Minnesota; Covington, Kentucky; Mount Pleasant, Tennessee.

Prasopora grandis (Ulrich).

1886. Monticulipora grandis. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 78.
1893. Monticulipora grandis. Ulrich, Geol. Minnesota, III, p. 219, pl. xv, 1–6.
Trenton (Stones River and Trenton): Minneapolis, St. Paul, and Cannon Falls, Minnesota.

Prasopora ? hospitalis (Nicholson).

1881. Monticulipora (Prasopora) Selwynii var. hospitalis. Nicholson, Genus Monticulipora, p. 209, fig. 45.
1882. Prasopora hospitalis. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 237.
1888. Monticulipora hospitalis. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 26.
1888. Monticulipora hospitalis var. neglecta. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 27, pl. i, 3.
1896. Monticulipora hospitalis var. neglecta. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 124.
Cincinnati (Richmond): A common form of the Richmond in Ohio, Indiana, and Illinois.

Prasopora insularis Ulrich.

1893. Prasopora insularis. Ulrich, Geol. Minnesota, III, p. 251, pl. xvi, 18-23.

Trenton: Cannon Falls, St. Paul, Berne, and Kenyon, Minnesota; Neenah, Wisconsin; Decorah, Iowa.

Prasopora insularis-filmorensis Ulrich.

1893. Prasopora insularis var. filmorensis. Ulrich, Geol. Minnesota, III, p. 252, pl. xvi, 18, 19.

Trenton: Fountain and Preston, Minnesota.

Prasopora lenticularis Ulrich.

1893. Prasopora lenticularis. Ulrich, Geol. Minnesota, III, p. 253, pl. xvii, 22-25.

Trenton (Black River): St. Paul and Cannon Falls, Minnesota.

Prasopora lycoperdon Ulrich. See Prasopora simulatrix Ulrich.

Prasopora lycoperdon Vanuxem, var. Selwyni Ami. Not recognizable.

1892. Prasopora lycoperdon Vanuxem, var. Selwyni. Ami, Canadian Record of Science, V, p. 99.

Trenton: Quebec City, Quebec.

Prasopora ? newberryi Ulrich. See Aspidopora newberryi (Nicholson).

Prasopora nodosa Ulrich.

1882. Prasopora nodosa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 245, pl. xi, 1-1*b*.

1894. Prasopora nodosa. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 189.

Trenton: Nashville, Tennessee; Burgin and Frankfort, Kentucky.

Prasopora oculata Foord.

1883. Prasopora oculata. Foord, Contr. Micro-Pal. Cambro-Sil., p. 11, pl. iii, 1-1*g*.

1893. Prasopora oculata. Ulrich, Geol. Minnesota, III, p. 252, fig. 15*c*, *d*.

Trenton: Ottawa City, Canada; Goodhue County, Minnesota.

Prasopora parmula Foerste. See Aspidopora parmula (Foerste).

Prasopora selwyni (Nicholson).

1879. Monticulipora (Diplotrypa) Whiteavesii (in part). Nicholson, Pal. Tabulate Corals, p. 316.

1881. Monticulipora (Prasopora) Selwynii. Nicholson, Genus Monticulipora, p. 206, fig. 44.

1893. Prasopora selwyni. Ulrich, Geol. Minnesota, III, p. 250, pl. xvi, 16, 17, fig. 15*a*, *b* (p. 248).

1896. Prasopora Selwynii. Zittel's Textb. Pal. (Engl. ed.), fig. 188A (not B= Peronopora decipiens (Rominger)) (p. 104).

Trenton: Peterborough and Ottawa, Ontario; Cannon Falls, Minnesota.

Prasopora simulatrix Ulrich.

1886. Prasopora simulatrix. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 85.

1893. Prasopora simulatrix. Ulrich, Geol. Minnesota, III, p. 245, pl. xvi, 1-10.

1896. Prasopora simulatrix. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 452 (p. 273).

1897. Prasopora simulatrix. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 171, 172 (p. 587).

1890. Prasopora lycoperdon. Ulrich, Geol. Sur. Illinois, VIII, fig. 7*a*-*b* (p. 318).

1895. Monticulipora selwynii (not of Nicholson). J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 86.

Prasopora simulatrix Ulrich—Continued.

1895. Trenton (Black River and Trenton): A rather common form in the Trenton of Kentucky, Tennessee, and Wisconsin, and in the Black River and Trenton of Minnesota.

Prasopora simulatrix-orientalis Ulrich.

1879. Monticulipora (Diplotrypa) Whiteavesii (in part). Nicholson, Pal. Tabulate Corals, p. 316, fig. 42*c*, pl. xiv, 1.

1893. Prasopora simulatrix var. orientalis. Ulrich, Geol. Minnesota, III, p. 246, pl. xvi, 1, 2, 6, 7.

Trenton: Ottawa and Peterborough, Canada; Trenton Falls, New York.

PRISMOPORA Hall. Genotype: Prismopora triquetra Hall.

1883. Prismopora. Hall, Trans. Albany Institute, X, pp. 158, 193 (abstract, 1881, p. 17).

1884. Prismopora. Hall, Rep. State Geologist New York for the year 1883, p. 50.

1884. Prismopora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 40.

1887. Prismopora. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 75.

1887. Prismopora. Hall and Simpson, Pal. New York, VI, p. xxi.

1889. Prismopora. Miller, North American Geol. Pal., p. 317.

1890. Prismopora. Ulrich, Geol. Sur. Illinois, VIII, p. 386.

1897. Prismopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 531.

Prismopora dilata Hall. See Prismopora dilatata Hall.

Prismopora dilatata Hall.

1883. Prismopora dilata. Hall, Trans. Albany Institute, X, p. 193 (abstract, 1881, p. 193).

1884. Prismopora dilatata. Hall, Rep. State Geologist New York for the year 1883, p. 50.

1887. Prismopora dilatata. Hall and Simpson, Pal. New York, VI, p. 265, pl. lxii, 13, 14.

1891. Prismopora dilatata. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 53; Forty-fourth Ann. Rep. New York State Museum, p. 83.

Hamilton: Near Leonardsville, New York.

Prismopora lata Hall and Simpson.

1887. Prismopora lata. Hall and Simpson, Pal. New York, VI, p. 266.

1891. Prismopora lata. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 53; Forty-fourth Ann. Rep. New York State Museum, p. 83.

Hamilton: Near Le Roy, New York.

Prismopora minima Ulrich.

1890. Prismopora minima. Ulrich, Geol. Sur. Illinois, VIII, p. 506, pl. lxxviii, 1–1*c*.

Lower Coal Measures: Sparta, Illinois.

Prismopora paucirama Hall.

1883. Prismopora paucirama. Hall, Trans. Albany Institute, X, p. 159 (abstract, 1881, p. 17).

1883. Prismopora paucirama. Hall, Rep. State Geologist New York for the year 1882, pl. xxv, 11.

1886. Prismopora paucirama. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxix, 16, 17.

1887. Prismopora paucirama. Hall and Simpson, Pal. New York, VI, p. 98, pl. xxviii, 11, pl. xxix, 16, 17.

Upper Helderberg: Thompsons Lake, Albany County, New York.

Prismopora ? serrata (Meek).

1875. Ptilodictya (Stictopora) serrata. Meek, Pal. Ohio, II, p. 327, pl. xx, 4.
1887. Prismopora serrata. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 75, pl. vii, 6*a–c*.
Lower Coal Measures: Flint Ridge, Ohio.
Obs. This may prove the same as Cystodictya carbonaria (Meek).

Prismopora serrulata Ulrich.

1884. Prismopora serrulata. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 41, pl. ii, 2–2*f*.
Chester: Sloans Valley and Grayson Springs, Kentucky.

Prismopora sparsipora (Hall).

1883. Thallostigma sparsipora. Hall, Trans. Albany Institute, X, p. 155 (abstract, 1881, p. 13).
1886. Prismopora sparsipora. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxxii, 25–28.
1887. Prismopora sparsipora. Hall and Simpson, Pal. New York, VI, p. 288, pl. xxxii, 24–27.
Hamilton: Falls of the Ohio. In the Trans. Albany Institute, X, p. 155, the locality is given as Onondaga Valley, New York.

Prismopora subtriquetra Simpson. See Prismopora triquetra Hall.

Prismopora triangulata (White).

1878. Ptilodictya triangulata. White, Proc. Acad. Nat. Sci. Philadelphia, p. 35.
1879. Ptilodictya triangulata. White, Bull. U. S. Geol. Sur. Territories, V, p. 214.
1881. Ptilodictya triangulata. White, Wheeler's U. S. Geol. Sur., III, Appendix, p. xxiv, pl. iv, 2*a–e*.
1881. Ptilodictya triangulata. White, Twelfth Ann. Rep. U. S. Geol. Geogr. Sur. Territories, p. 131, pl. xxxiii, 3*a–e*.
1884. Prismopora triangulata. Ulrich, Jour. Cincinnati Soc. Nat. Hist, VII, p. 41.
Coal Measures: Danville, Illinois.

Prismopora trifolia Ulrich. See Phractopora trifolia (Rominger).

Prismopora triquetra Hall.

1883. Prismopora triquetra. Hall, Trans. Albany Institute, X, p. 159 (abstract, 1881, p. 17).
1883. Prismopora triquetra. Hall, Rep. State Geologist New York for the year 1882, pl. xxv, 8–10.
1886. Prismopora triquetra. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxix, 9–15.
1887. Prismopora triquetra. Hall and Simpson, Pal. New York, VI, p. 97, pl. xxviii, 8–10, pl. xxix, 9–15.
1897. Prismopora triquetra. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xii, 9–14.
1897. Prismopora subtriquetra. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xii, 15.
Hamilton: Falls of the Ohio.

PROBOSCINA Audouin. Genotype: Proboscina boryi Audouin.

1826. Proboscina. Audouin, Savigny's Descr. del Egypte, Pol., p. 236.
1854. Proboscina. D'Orbigny, Pal. Francais, Terr. Cret., V, p. 844.
1854. Proboscina. Haime, Bry. Foss. Form. Juras., p. 166 (extra edition, p. 10).
1882. Proboscina. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 149.
1890. Proboscina. Ulrich, Geol. Sur. Illinois, VIII, p. 368.
1893. Proboscina. Ulrich, Geol. Minnesota, III, p. 119.

PROBOSCINA Audouin—Continued.

1897. Proboscina. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 596.

Proboscina auloporoides (Nicholson).

1875. Alecto auloporoides. Nicholson, Pal. Ohio, II, p. 267, pl. xxv, 2–2*b*.
1889. Proboscina auloporoides. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 28.
1889. Stomatopora auloporoides. Miller, North American Geol. Pal., p. 325.
1895. Proboscina auloporoides. Whiteaves, Pal. Foss., III, p. 115.

Cincinnati (Lorraine and Richmond): Cincinnati, Ohio, and vicinity; Stony Mountain, Manitoba.

Proboscina confusa (Nicholson).

1875. Alecto confusa. Nicholson, Pal. Ohio, II, p. 267, pl. xxv, 6.
1889. Stomatopora confusa. Miller, North American Geol. Pal., p. 325.

Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

Proboscina frondosa (Nicholson).

1873. Aulopora frondosa. James, Additions to Catal. Sil. Foss. Cincinnati group, p. 15. (Not defined.)
1875. Alecto frondosa. Nicholson, Pal. Ohio, II, p. 266, pl. xxv, 3–3*b*.
1889. Stomatopora frondosa. Miller, North American Geol. Pal., p. 325.
1889. Proboscina frondosa. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 28.
1893. Proboscina frondosa. Ulrich, Geol. Minnesota, III, p. 119, pl. i, 28.
1895. Proboscina frondosa. Whiteaves, Pal. Foss., III, p. 115.
1896. Stomatopora (Proboscina) frondosa. Ulrich, Zittel's Textb. Pal. (Eng. ed.), fig. 412*c* (p. 261).
1897. Proboscina frondosa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 201 (in part) (p. 596).

Cincinnati (Lorraine and Richmond): Cincinnati, Ohio, and vicinity (Lorraine); in the Richmond beds of Ohio, Indiana, Kentucky, Illinois, and at Stony Mountain, Manitoba.

Proboscina ? laxa Whiteaves.

1891. Proboscina laxa. Whiteaves, Contr. Canadian Pal., I, p. 212, pl. xxviii, 9, 9*a*.

Devonian (Hamilton?): Hay River, Canada.

Proboscina tumulosa Ulrich.

1893. Proboscina tumulosa. Ulrich, Geol. Minnesota, III, p. 119, pl. i, 24.
1897. Proboscina tumulosa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 201 (in part) (p. 596).

Trenton (Black River): St. Paul and Cannon Falls, Minnesota.

PROTOCRISINA Ulrich. Genotype: Protocrisina exigua Ulrich.

1890. Protocrisina. Ulrich, Geol. Sur. Illinois, VIII, p. 369.
1889. Protocrisina. (Ulrich, in press), Miller, North American Geol. Pal., p. 317.
1896. Protocrisina. Ulrich, Zittel's Textb. Pal. (Eng. ed.), p. 262.

Protocrisina exigua Ulrich.

1890. Protocrisina exigua. Ulrich, Geol. Sur. Illinois, VIII, p. 405, pl. xxix, 4–4*c*, pl. liii, 11–11*e*.
1896. Protocrisina exigua. Ulrich, Zittel's Textb. Pal. (Eng. ed.), fig. 417 (p. 262).

Trenton: Montreal, Canada; Trenton Falls, New York.
Cincinnati (Richmond): Wilmington, Illinois.

Protoretepora De Koninck. See Polypora McCoy.

Protoretepora (Polypora) Halliana De Koninck. See Polypora halliana Prout.

Protoretepora (Polypora) mexicana De Koninck. See Polypora mexicana Prout.

Protoretepora (Polypora) Shumardii De Koninck. See Polypora shumardi Prout.

Protoretepora (Polypora) hamiltoniana De Koninck. See Reteporina hamiltonensis (Prout).

PROUTELLA Ulrich. Genotype: Cyclopora discoidea Prout.

1890. Proutella. Ulrich, Geol. Sur. Illinois, VIII, pp. 403, 674.
1889. Proutella. (Ulrich, in press), Miller, North American Geol. Pal., p. 318.
1897. Proutella. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 601.

Proutella discoidea (Prout).

1860. Cyclopora discoidea. Prout, Trans. St. Louis Acad. Sci., I, p. 578.
1866. Cyclopora discoidea. Prout, Geol. Sur. Illinois, II, p. 420, pl. xxi, 2, 2*a*, pl. xxii, 10, 10*a*.
1890. Proutella discoidea. Ulrich, Geol. Sur. Illinois, VIII, p. 674, pl. lxix, 4–4*d*.
1894. Proutella discoidea. Keyes, Missouri Geol. Sur., V, p. 37.
1897. Proutella discoidea. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 214–216 (p. 602).
Keokuk: Warsaw, Hamilton, and Nauvoo, Illinois; Keokuk, Iowa.

Pteropora Hall. See Tæniopora Nicholson.

Pteropora duogeneris Hall. See Tæniopora exigua Nicholson.

Ptilionella Hall. See Reptaria Rolle.

Ptilionella conferta Hall. See Hederella conferta (Hall).

Ptilionella nodata Hall. See Reptaria nodata (Hall).

Ptilionella penniformis Hall. See Reptaria stolonifera Rolle.

PTILOCELLA Simpson. Genotype: Ptilodictya parallela Hall.

1897. Ptilocella. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 605.

Ptilocella parallela (Hall and Simpson).

1887. Ptilodictya parallela. Hall and Simpson, Pal. New York, VI, p. 270, pl. lxi, 7, 8.
1891. Ptilodictya parallela. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 54; Forty-fourth Ann. Rep. New York State Museum, p. 84.
1897. Ptilocella parallela. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xv, 1–3.
Hamilton: Darien Center and near the head of Lake Canandaigua, New York.

PTILODICTYA Lonsdale. Genotype: Flustra lanceolata Lonsdale (Goldfuss ?).

1839. Ptilodictya. Lonsdale, Murchison's Silurian System, p. 676.
1852. Ptilodictya. McCoy, Brit. Pal. Foss., p. 45.
1860. Ptilodictya. Eichwald, Lethæa Rossica, I, p. 387.
1874. Ptilodictya. Nicholson, Geol. Mag., new ser., I, p. 123.
1874. Ptilodictya. Nicholson, Pal. Province Ontario, p. 97.
1881. Ptilodictya. Vine, Rep. Brit. Assoc. Adv. Sci., p. 164.

PTILODICTYA Lonsdale—Continued.

1882. Ptilodictya. Vine, Quar. Jour. Geol. Soc. London, XXXVIII, p. 63.
1882. Ptilodictya. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, pp. 151, 162.
1883. Ptilodictya. Vine, Rep. British Assoc. Adv. Sci., p. 203.
1887. Ptilodictya. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 155.
1887. Ptilodictya. Hall and Simpson, Pal. New York, VI, p. xix.
1889. Ptilodictya. Miller, North American Geol. Pal., p. 318.
1889. Ptilodictya. Nettleroth, Kentucky Fossil Shells, p. 30.
1890. Ptilodictya. Ulrich, Geol. Sur. Illinois, VIII, p. 390.
1893. Ptilodictya. Ulrich, Geol. Minnesota, III, p. 163.
1896. Ptilodictya. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 279.
1897. Ptilodictya. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 541.
1899. Ptilodictya. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 176.
1874. Escharopora (not of Hall, 1847, Pal. New York, I, p. 72). Hall, Twenty-sixth Ann. Rep. New York State Mus., [p. 99]; Thirty-second Ann. Rep. New York State Museum, 1879, p. 161.
1875. Heterodictya. Nicholson, Geol. Mag., new ser., II, p. 33.
1875. Heterodictya. Nicholson, Pal. Province Ontario, p. 79.
1889. Heterodictya. Miller, North American Geol. Pal., p. 309.

Ptilodictya acuminata James. See Escharopora acuminata (James).

Ptilodictya acuta Nicholson. See Pachydictya acuta (Hall).

Ptilodictya alcyone Billings. See Pachydictya alcyone (Billings).

Ptilodictya angusta (Hall).

1883. Escharopora (Ptilodictya) angusta. Hall, Trans. Albany Institute, X, p. 62 (abstract, 1879, p. 6).
1882. Escharopora (Ptilodictya) angusta. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. His., p. 245.
Niagara: Waldron, Indiana.

Ptilodictya antiqua James. See Eurydictya multipora (Hall).

Ptilodictya ? arctipora Nicholson. See Bythopora arctipora (Nicholson.)

Ptilodictya arguta Billings. See Pachydictya crassa (Hall).

Ptilodictya bipunctata (Van Cleve) Hall. See Phænopora expansa Hall and Whitfield.

Ptilodictya briareus Ulrich. See Escharopora briareus (Ulrich).

Ptilodictya canadensis Billings.

1866. Ptilodictya canadensis. Billings, Catal. Sil. Foss. Anticosti, p. 9.
Cincinnati (Richmond): Anticosti Island.

Ptilodictya (Stictopora) carbonaria Meek. See Cystodictya carbonaria (Meek).

Ptilodictya ? cincinnatiensis James. See Arthropora shafferi-cleavelandi (James).

Ptilodictya cleavelandi James. See Arthropora shafferi-cleavelandi (James).

Ptilodictya clintonensis James. See Ptilodictya nodosa James.

Ptilodictya cosciniformis Nicholson. See Coscinella cosciniformis (Nicholson).

Ptilodictya crassa Nicholson and Hinde. See Pachydictya crassa (Hall).

Ptilodictya cruciformis d'Orbigny (not defined). See Escharopora falciformis (Nicholson).

Ptilodictya (Stictopora?) dictyota Meek. See Coscinium dictyotum (Meek).

Ptilodictya dubia James. See Arthropora shafferi-cleavelandi (James).

Ptilodictya emacerata Nicholson. See Dicranopora emacerata (Nicholson).

Ptilodictya ensiformis Ulrich. See Phænopora ? ensiformis Hall.

Ptilodictya excellens Billings. See Phænopora excellens (Billings).

Ptilodictya expansa Hall (in part). See Phænopora expansa Hall and Whitfield.

Ptilodictya expansa Hall.

1883. Ptilodictya expansa (in part). Hall, Twelfth Ann. Rep. Indiana Geol. Nat. Hist., pl. xii, 2, 3 (but not description on p. 266=Phænopora expansa Hall and Whitfield).

1887. Ptilodictya expansa. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 155; ibid., III, 1888, pl. xv, 5.

1889. Ptilodictya expansa. Foerste, Proc. Boston Soc. Nat. Hist., XXIV, p. 327,

1890. Ptilodictya expansa. Ulrich, Geol. Sur. Illinois, VIII, fig. 11*e* (p. 391).

1895. Ptilodictya lanceolata var. Americana. Foerste, Geol. Sur. Ohio, VII, p. 598, pl. xxxvi, 3*a*–*b*.

Clinton: Dayton and Todds Fork, Ohio; Cumberland Gap, Tennessee. (Foerste).

Ptilodictya expansa-emarcescens Foerste.

1889. Ptilodictya expansa var. emarcescens. Foerste, Proc. Boston Soc. Nat. Hist., XXIV, p. 328, pl. vi, 30.

1895. Pachydictya emarcescens. Foerste, Geol. Sur. Ohio, VII, p. 599, pl. xxxi, 30.

Clinton: Eaton, Ohio.

Obs. This form may prove to be young examples of Ptilodictya expansa Hall.

Ptilodictya explicans Safford. Not recognized.

1869. Ptilodictya explicans. Safford, Geol. Tennessee, p. 286.

Ptilodictya falciformis Nicholson. See Escharopora falciformis (Nicholson).

Ptilodictya famelicus Foerste. See Pachydictya ? famelica (Foerste).

Ptilodictya farctus Foerste. See Pachydictya crassa (Hall).

Ptilodictya fenestelliformis Nicholson. See Pachydictya fenestelliformis (Nicholson).

Ptilodictya fimbriata James. See Phænopora fimbriata (James).

Ptilodictya flagellum Nicholson.

1875. Ptilodictya flagellum. Nicholson, Ann. Mag. Nat. Hist., ser. 4, XV, p. 179, pl. xiv, 3–3*b*.

1875. Ptilodictya flagellum. Nicholson, Pal. Ohio, II, p. 262, pl. xxv, 4–4*b*.

Cincinnati (Richmond): Near Lebanon, Ohio.

Obs. Ptilodictya nodosa James may be a synonym of this species.

Ptilodictya flexuosa James. See Stictoporella flexuosa (James).

Ptilodictya fragilis Billings. See Dicranopora fragilis (Billings).

Ptilodictya gigantea (Nicholson).
1875. Heterodictya gigantea. Nicholson, Geol. Mag., new ser., II, p. 34, pl. ii, 1*a–e*.
1875. Heterodictya gigantea. Nicholson, Pal. Province Ontario, p. 79, pl. ii, 1*a–e*.
1882. Ptilodictya (Heterodictya) gigantea. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 140.
1889. Heterodictya gigantea. Miller, North American Geol. Pal., fig. 488 (p. 309).
Upper Helderberg: Jarvis, Ontario.

Ptilodictya Gilberti Nicholson. See Cystodictya gilberti (Meek).

Ptilodictya (Stictopora) Gilberti Meek. See Cystodictya gilberti (Meek).

Ptilodictya gladiola Billings.
1866. Ptilodictya gladiola. Billings, Catal. Sil. Foss. Anticosti, p. 10.
Anticosti: Anticosti Island.

Ptilodictya grahami James. See Arthropora shafferi-cleavelandi (James).

Ptilodictya granulosa James. See Rhinidictya parallela (James).

Ptilodictya hilli James. See Escharopora hilli (James).

Ptilodictya internodia Miller and Dyer. See Dicranopora internodia (Miller and Dyer).

Ptilodictya kentuckyensis James.
1881. Ptilodictya kentuckyensis. James, Paleontologist, No. 5, p. 38.
Cincinnati: Cincinnati, Ohio.
Obs. Description given is not sufficient to identify the species. The form may perhaps be a synonym of Arthropora shafferi-cleavelandi (James).

Ptilodictya lanceolata var. Americana Foerste. See Ptilodictya expansa Hall.

Ptilodictya libana Safford. See Escharopora libana (Safford).

Ptilodictya (Stictopora) lichenoides Meek. Not recognizable.
1873. Ptilodictya (Stictopora) lichenoides. Meek, Pal. Ohio, I, p. 195, pl. xviii, 2.
Corniferous: Whitehouse, Lucas County, Ohio.

Ptilodictya lirata Hall and Simpson. See Phænopora lirata (Hall).

Ptilodictya maculata Ulrich. See Escharopora maculata (Ulrich).

Ptilodictya magnifica Miller.
1878. Ptilodictya magnifica. Miller, Jour. Cincinnati Soc. Nat. Hist., I, p. 100, pl. iii, 1, 1*a*.
1889. Ptilodictya magnifica. Miller, North American Geol. Pal., fig. 503, (p. 318).
1890. Ptilodictya magnifica. Ulrich, Geol. Sur. Illinois, VIII, fig. 11*a–c* (p. 391).
Cincinnati (Richmond): Richmond, Indiana; Oxford and Waynesville, Ohio; Wilmington, Illinois; Leipers Creek, Maury County, Tennessee.

Ptilodictya Meeki Nicholson. See Cystodictya meeki (Nicholson).

Ptilodictya multiramis Safford. Not recognized.
1869. Ptilodictya multiramis. Safford, Geol. Tennessee, p. 286.
Obs. See note on Escharopora briareus Ulrich.

Ptilodictya nebulosa (Hall).

1874. Escharopora nebulosa. Hall, Twenty-sixth Ann. Rep. New York State Museum, p. 99.

1879. Escharopora nebulosa. Hall, Thirty-second Ann. Rep. New York State Museum, p. 162 (reprint, 1880, p. 24).

1883. Escharopora (Ptilodictya) nebulosa. Hall, Rep. State Geologist New York for the year 1882, pl. xvii, 14–16.

1887. Ptilodictya nebulosa. Hall and Simpson, Pal. New York, VI, p. 40, pl. xvii, 13–18.

1874. Paleschara bifoliata. Hall, Twenty-sixth Ann. Rep. New York State Museum, p. 107.

1879. Escharopora (? Paleschara) bifoliata. Hall, Thirty-second Ann. Rep. New York State Museum, p. 162 (reprint, 1880, p. 24).

1883. Paleschara ? foliata. Hall, Rep. State Geologist New York for the year 1882, pl. xvii, 17, 18.

Lower Helderberg: Catskill, Clarksville, and Schoharie, New York.

Ptilodictya nitidula Billings. See Dicranopora nitidula (Billings).

Ptilodictya nodosa James.

1879. Ptilodictya nodosa. James, Paleontologist, No. 3, p. 20.

1882. Ptilodictya nodosa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., IV, pl. vii, 2, 2*a*.

1881. Ptilodictya clintonensis. James, Paleontologist, No. 5, p. 38.

1881. Ptilodictya teres. James, Paleontologist, No. 5, p. 40.

1890. Ptilodictya variabilis. Ulrich, Geol. Sur. Illinois, VIII, p. 304, fig. 2*a*, and fig. 6*a* (p. 317).

1889. Ptilodictya variabilis. Miller, North American Geol. Pal., figs. 505, 506 (p. 319).

Cincinnati (Richmond): Clinton and Warren counties, Ohio.

Obs. See also Ptilodictya flagellum Nicholson.

Ptilodictya obliqua (Ringueberg).

1884. Stictopora obliqua. Ringueberg, Proc. Acad. Nat. Sci. Philadelphia, p. 146, pl. ii, 2, 2*a*.

1889. Ptilodictya obliqua. Miller, North American Geol. Pal., p. 319.

Clinton: Lockport, New York.

Obs. This species was defined and figured in such a manner that it is questionable whether it can be recognized.

Ptilodictya parallela Hall and Simpson. See Ptilocella parallela (Hall and Simpson).

Ptilodictya parallela James. See Rhinidictya parallela (James).

Ptilodictya pavonia D'Orbigny. See Escharopora pavonia (D'Orbigny).

Ptilodictya perelegans Ulrich. See Graptodictya perelegans (Ulrich).

Ptilodictya platyphylla James. See Phænopora expansa Hall and Whitfield.

Ptilodictya plumaria James.

1878. Ptilodictya plumaria. James, Paleontologist, No. 1, p. 4.

1882. Ptilodictya plumaria. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, pl. vii, 1, 1*a*.

Cincinnati (Richmond): Waynesville and Oxford, Ohio.

Ptilodictya plumea Hall and Simpson. See Stictoporina plumea (Hall and Simpson).

Ptilodictya ponderosa Ulrich.

1888. Ptilodictya ponderosa. Ulrich, American Geologist, I, p. 308.
Trenton: Covington, Kentucky.
Obs. This is a good species belonging to the genus Escharopora, but requires further description before the name can be considered valid.

Ptilodictya ? punctata Nicholson and Hinde. See Phænopora punctata (Nicholson and Hinde).

Ptilodictya ramosa Ulrich. See Escharopora ramosa (Ulrich).

Ptilodictya ? raripora Nicholson and Hinde. See Nematopora raripora (Hall).

Ptilodictya retiformis Hall and Simpson. See Stictoporina plumea (Hall and Simpson).

Ptilodictya rudis Foerste. See Pachydictya crassa (Hall).

Ptilodictya rustica Billings. See Pachydictya crassa (Hall).

Ptilodictya scutulata Hall and Simpson. See Stictoporina scutulata (Hall).

Ptilodictya (Stictopora) sereata Meek. See Prismopora? serrata (Meek).

Ptilodictya Shafferi Nicholson. See Arthropora shafferi (Meek).

Ptilodictya (Stictopora) Shafferi Meek. See Arthropora shafferi (Meek).

Ptilodictya subrecta Ulrich. See Escharopora subrecta (Ulrich).

Ptilodictya sulcata Billings.

1866. Ptilodictya sulcata. Billings, Catal. Sil. Fos. Anticosti, p. 35.
Anticosti: Anticosti Island.

Ptilodictya superba Billings. See Phænopora superba (Billings).

Ptilodictya symmetra Safford. Not recognized.

1869. Ptilodictya symmetra. Safford, Geol. Tennessee, p. 286.

Ptilodictya ?? tarda Billings.

1874. Ptilodictya tarda. Billings, Pal. Foss., II, p. 13.
Oriskany (Gaspé Limestone): Grand Creve, Canada.

Ptilodictya ? tenera Billings.

1866. Ptilodictya tenera. Billings, Catal. Sil. Foss. Anticosti, p. 33.
Anticosti: Anticosti Island.

Ptilodictya tenuis Hall and Simpson. See Phænopora tenuis (Hall).

Ptilodictya teres James. See Ptilodictya nodosa James.

Ptilodictya triangulata White. See Prismopora triangulata (White).

Ptilodictya variabilis Ulrich. See Ptilodictya nodosa James.

Ptilodictya (Stictopora) variabilis Prout. Not recognized; probably Cystodictya gilberti (Meek).

1866. Ptilodictya (Stictopora) variabilis. Prout, Trans. St. Louis Acad. Sci., II, p. 412.
Devonian: Columbus, Ohio.

Ptilodictya welshi James. See Phænopora multifida (Hall).

Ptilodictya whiteavesi Ulrich.

1889. Ptilodictya Whiteavesii. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 44, pl. viii, 1–1*e*.
1895. Ptilodictya Whiteavesii. Whiteaves, Pal. Foss., III, p. 118.
Cincinnati (Richmond): Stony Mountain, Manitoba.

Ptilodictya whitfieldi Foerste.

1895. Ptilodictya Whitfieldi. Foerste, Geol. Sur. Ohio, VII, p. 598, pl. xxxvi, 4, pl. xxviii, 5.
Clinton: Todds Fork, Ohio.

PTILOPORA McCoy. Genotype: Ptilopora pluma McCoy.

1845. Ptilopora. McCoy, Synop. Carbon. Foss. Ireland, p. 200.
1858. Ptilopora. Hall, Pal. Iowa, p. 652.
1860. Ptilopora. Eichwald, Lethæa Rossica, I, p. 381.
1883. Ptilopora. Hall, Trans. Albany Institute, X, p. 196 (abstract, 1881, p. 196).
1883. Ptilopora. Claypole, Quar. Jour. Geol. Soc. London, XXXIX, p. 31.
1885. Ptilopora. Hall, Rep. State Geologist, New York, for the year 1884, p. 36.
1885. Ptilopora. Waagen and Pichl, Pal. Indica, Ser. XIII, p. 774.
1886. Ptilopora. Ulrich, Contr. American Pal., I, p. 4.
1887. Ptilopora. Hall and Simpson, Pal. New York, VI, p. xxiv.
1889. Ptilopora. Miller, North American Geol. Pal., p. 318.
1890. Ptilopora. Ulrich, Geol. Sur. Illinois, VIII, pp. 398, 621.
1895. Ptilopora. Whidborne, Devon. Fauna England, (Pal. Soc. Publ.), II, part 4, p. 184.
1896. Ptilopora. Ulrich, Zittel's Textb. Pal. (Engl. ed.) p. 283.
1897. Ptilopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 519, 521.
1876–77. Dendricopora. De Koninck, Rech. sur les Foss. Pal. de la Nouv. Galles du Sud, III, p. 169; 1898, Engl. translation, Mem. Geol. Sur. New South Wales, Pal. No. 6, p. 129.
1885. Dendricopora. Waagen and Pichl, Pal. Indica, Ser. XIII, p. 774.

Ptilopora acuta Ulrich.

1890. Ptilopora acuta. Ulrich, Geol. Sur. Illinois, VIII, p. 622, pl. lxv, 4, 4*a*.
1894. Ptilopora acuta. Keyes, Missouri Geol. Sur., V, p. 31.
Keokuk: Keokuk and Bentonsport, Iowa.
Burlington: Burlington, Iowa.

Ptilopora cylindracea Ulrich.

1890. Ptilopora cylindracea. Ulrich, Geol. Sur. Illinois, VIII, p. 623, pl. lxvi, 2–2*b*.
1894. Ptilopora cylindracea. Keyes, Missouri Geol. Sur., V, p. 32.
Keokuk: Kings Mountain, Kentucky; Bentonsport, Iowa.

Ptilopora infrequens Hall and Simpson.

1887. Ptilopora infrequens. Hall and Simpson, Pal. New York, VI, p. 284, pl. lxvi, 26–29.
1897. Ptilopora infrequens. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. viii, 4, 6, 7.
Hamilton: Western New York.

Ptilopora nodosa Hall.

1883. Ptilopora nodosa. Hall, Trans. Albany Institute, X, p. 196 (abstract, 1881, p. 196).
1884. Ptilopora nodosa. Hall, Rep. State Geologist New York for the year 1883, p. 59.

Ptilopora nodosa Hall—Continued.

1887. Ptilopora nodosa. Hall and Simpson, Pal. New York, VI, p. 285, pl. lxvi, 25.

1891. Ptilopora nodosa. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 57; Forty-fourth Ann. Rep. New York State Museum, p. 87.

1897. Ptilopora nodosa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. viii, 5.

Hamilton: Near Alden, New York.

Ptilopora paupera Ulrich.

1888. Ptilopora paupera. Ulrich, Bull. Denison Univ., IV, p. 74.

1890. Ptilopora paupera. Ulrich, Geol. Sur. Illinois, VII, p. 624, pl. lxvi, 10.

Waverly: Lodi, Ohio.

Keokuk: Kings Mountain, Kentucky.

Ptilopora prouti Hall.

1858. Ptilopora prouti. Hall, Pal. Iowa, p. 653, pl. xxii, 6*a–c*, 7.

1890. Ptilopora prouti. Ulrich, Geol. Sur. Illinois, VIII, p. 625, pl. lxv, 3–3*c*.

1894. Ptilopora prouti. Keyes, Missouri Geol. Sur., V, p. 32.

Warsaw: Barretts Station, Missouri; Warsaw, near New Providence, and Monroe County, Illinois.

Ptilopora striata Hall.

1883. Ptilopora striata. Hall, Trans. Albany Institute, X, p. 196 (abstract, 1881, p. 196).

1884. Ptilopora striata. Hall, Rep. State Geologist New York for the year 1883, p. 58.

1887. Ptilopora striata. Hall and Simpson, Pal. New York, VI, p. 283, pl. lxvi, 30–33.

1891. Ptilopora striata. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 56; Forty-fourth Ann. Rep. New York State Museum, p. 86.

1897. Ptilopora striata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. viii, 2, 3.

1898. Ptilopora striata. Whiteaves, Contr. Canadian Pal., I, p. 379.

Hamilton: Moscow and other localities in central and western New York; West Williams, Ontario.

Ptilopora valida Ulrich.

1890. Ptilopora valida. Ulrich, Geol. Sur. Illinois, VIII, p. 623, pl. lxv, 5–5*b*, pl. lxvi, 1–1*b*.

1894. Ptilopora valida, Keyes, Missouri Geol. Sur., V, p. 32.

Keokuk: Bentonsport and Keokuk, Iowa; Jersey County, Illinois.

PTILOPORELLA Hall. Genotype: Fenestella (Ptiloporella) laticrescens Hall.

1885. Ptyloporella. Hall, Rep. State Geologist New York for the year 1884, p. 36.

1887. Ptiloporella. Hall and Simpson, Pal. New York, VI, p. xxiv.

1889. Ptiloporella. Miller, North American Geol. Pal., p. 319.

1895. Ptiloporella. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 690, 704, 725; Forty-seventh Ann. Rep. New York State Museum, pp. 884, 898, 919. (On p. 704 (p. 898 of Museum Report) Simpson has inadvertently interchanged the terms Ptiloporella and Ptiloporina.)

PTILOPORELLA Hall—Continued.

1897. Ptiloporella. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 506, 521.

1895. Pinnaporina. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, p. 705 (not p. 725 = Ptiloporina); Forty-seventh Ann. Rep. New York State Museum, p. 899 (not p. 919).

1897. Pinnaporella. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 507, 521.

Ptiloporella ? bifurca (Ulrich).

1886. Fenestella bifurca. Ulrich, Contr. American Pal., I, p. 6, pl. i, 2, 2*a*.

1887. Fenestella confertipora. Hall and Simpson, Pal. New York, VI, p. 108, pl. xlvi, 7–11, 17–21.

Hamilton: Falls of the Ohio.

Ptiloporella inæqualis (Hall and Simpson).

1887. Fenestella (Ptiloporella) inæqualis. Hall and Simpson, Pal. New York, VI, p. 171.

1897. Ptiloporella inæqualis. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. iv, 1, 2.

Upper Helderberg: Walpole, Ontario.

Ptiloporella laticrescens (Hall and Simpson).

1887. Fenestella (Ptiloporella) laticrescens. Hall and Simpson, Pal. New York, VI, p. 171.

1897. Ptiloporella laticrescens. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. iv, 3–6.

Upper Helderberg: Walpole, Ontario.

Ptiloporella nervata (Nicholson).

1875. Fenestella nervata. Nicholson, Pal. Ohio, II, p. 264, pl. xxv, 11, 11*a*.

1889. Ptiloporella nervata. Miller, North American Geol. Pal., p. 319.

Niagara: Cedarville, Ohio.

PTILOPORINA Hall. Genotype: Fenestella (Ptyloporina) conica Hall.

1885. Ptyloporina. Hall, Rep. State Geologist New York for the year 1884, p. 36.

1887. Ptiloporina. Hall and Simpson, Pal. New York, VI, p. xxiv.

1889. Ptiloporina. Miller, North American Geol. Pal., p. 319.

1895. Ptiloporina. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 690, 725; Forty-seventh Ann. Rep. New York State Museum, pp. 884, 919.

1897. Ptiloporina. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 507, 521. (Makes genotype Ptiloporina sinistralis.)

1895. Pinnaporella. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 704, 725.

1895. Pinnaporina. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, p. 725 (not p. 705 = Ptiloporella); Forty-seventh Ann. Rep. New York State Museum, p. 919, (not p. 899).

1897. Pinnaporina. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 507.

Ptiloporina conica (Hall and Simpson).

1887. Fenestella (Ptiloporina) conica. Hall and Simpson, Pal. New York, VI, p. 172, pl. xliii, 2–4.

1897. Ptiloporina conica. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. iv, 8.

Upper Helderberg: Schoharie, New York.

Ptiloporina disparilis (Hall and Simpson).

1887. Fenestella (Ptiloporina) disparilis. Hall and Simpson, Pal. New York, VI, p. 173, pl. xliii, 7, 8.

1897. Ptiloporina disparilis. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. iv, 11, 12.

Upper Helderberg: Walpole, Ontario.

Ptiloporina pinnata (Hall and Simpson).

1887. Fenestella (Ptiloporina) pinnata. Hall and Simpson, Pal. New York, VI, p. 172, pl. xliii, 5, 6.

1897. Pinnaporina pinnata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. iv, 7.

1897. Ptiloporina pinnata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. viii, 1.

Upper Helderberg: Schoharie, New York.

Ptiloporina sinistralis (Hall and Simpson).

1887. Fenestella (Ptiloporina) sinistralis. Hall and Simpson, Pal. New York, VI, p. 174, pl. xliii, 9.

1897. Ptiloporina sinistralis. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. iv, 9, 10.

Upper Helderberg: Schoharie, New York.

PTILOTRYPA Ulrich. Genotype: Ptilotrypa obliquata Ulrich.

1890. Ptilotrypa. Ulrich, Geol. Sur. Illinois, VIII, p. 393.

1889. Ptilotrypa. (Ulrich, in press), Miller, North American Geol. Pal., p. 320.

1897. Ptilotrypa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 542.

Ptilotrypa obliquata Ulrich.

1890. Ptilotrypa obliquata. Ulrich, Geol. Sur. Illinois, VIII, p. 531, pl. xxx, 1-1*e*.

1897. Ptilotrypa obliquata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 100-103 (p. 542).

Cincinnati (Richmond): Wilmington, Illinois.

Ptychonema Hall. See Monotrypa Nicholson.

Ptychonema Helderbergiæ Hall. See Monotrypa ? helderbergiæ (Hall).

Ptychonema tabulatum Miller. See Monotrypa tabulata (Hall).

RAMIPORA Toula. Genotype: Ramipora hochstetteri Toula (from the Carboniferous of Spitzbergen).

1875. Ramipora. Toula, Neues Jahrbuch für Mineral., p. 230.

1878. Ramipora. Etheridge, Jun., Quar. Jour. Geol. Soc. London, XXXIV, p. 625.

1885. Ramipora. Waagen and Pichl, Pal. Indica, Ser. XIII, p. 775.

1889. Ramipora. Miller, North American Geol. Pal., p. 320.

1895. Ramipora. Whidborne, Devon. Fauna England, (Pal. Soc. Publ.), II, part 4, p. 186.

Obs. No species from the continent of North America has yet been described properly referable to this genus.

REPTARIA Rolle. Genotype: Reptaria stolonifera Rolle.

1851. Reptaria. Rolle, Leonhard und Bronn's Neues Jahrbuch, p. 810.

1887. Reptaria. Hall and Simpson, Pal. New York, VI, p. xxv.

1889. Reptaria. Miller, North American Geol. Pal., p. 320.

REPTARIA Rolle—Continued.

1897. Reptaria. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 599.
1899. Reptaria. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 178.
1883. Ptilionella. Hall, Trans. Albany Institute, X, p. 599 (abstract, 1881, p. 195).

Reptaria nodata (Hall).

1883. Ptilionella nodata. Hall, Trans. Albany Institute, X, p. 195 (abstract, 1881, p. 195).
1884. Ptilionella nodata. Hall, Rep. State Geologist New York for the year 1883, p. 57.
1887. Reptaria nodata. Hall and Simpson, Pal. New York, VI, p. 276.
Hamilton: Hopeton, Yates County, and Genesee Valley, Livingston County, New York.

Reptaria stolonifera Rolle.

1851. Reptaria stolonifera. Rolle, Leonhard und Bronn's Neues Jahrbuch, p. 810, pl. ix, 5, 6.
1887. Reptaria stolonifera. Hall and Simpson, Pal. New York, VI, p. 274, pl. lxv, 17–19.
1897. Reptaria stolonifera. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxv, 8, 9.
1899. Reptaria stolonifera. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 178, fig. 76.
1883. Ptilionella penniformis. Hall, Trans. Albany Institute, X, p. 195 (abstract, 1881, p. 195).
1884. Ptilionella penniformis. Hall, Rep. State Geologist New York for the year 1883, p. 56.
Hamilton: Cazenovia and Eighteenmile Creek, New York.

Retepora Lamarck. Not Paleozoic.

1874. Retepora (not Lamarck). Nicholson, Pal. Province Ontario, p. 101.
1885. Retepora (not Lamarck). Hall, Rep. State Geologist New York for the year 1884, p. 35.
Obs. The Retepora of most American authors is the genus Phylloporina.

Retepora angulata Hall. See Phylloporina angulata (Hall).

Retepora archimedes Owen. See Archimedes wortheni Hall.

Retepora asperato-striata Hall. See Phylloporina asperato-striata (Hall).

Retepora clintonii Vanuxem. Not defined.

1842. Retepora clintonii. Vanuxem, Geol. Rep. Third District New York, p. 87.
Clinton: No locality given.

Retepora diffusa Hall. See Drymotrypa diffusa (Hall).

Retepora fenestrata Hall. See Phylloporina fenestrata (Hall).

Retepora foliacea Hall. Abandoned by the author; fragment of some fossil not a bryozoan.

1847. Retepora foliacea. Hall, Pal. New York, I, p. 78, pl. xxvi, 9*a*, *b*.
Trenton: Lowville, Lewis County, New York.

Retepora flexuosa D'Orbigny. Not recognizable without material.

1842. Retepora flexuosa. D'Orbigny, Voyage dans l'Amérique Méridionale, III, p. 57, pl. vi, 6–8.
Carboniferous: Yarbichambi, Bolivia.

Retepora gracilis Hall. See Phylloporina gracilis (Hall).

Retepora hamiltonensis Prout. See Reteporina hamiltonensis (Prout).

Retepora incepta Hall. See Phylloporina incepta (Hall).

Retepora Phillipsi Nicholson. See Reteporina phillipsi (Nicholson).

Retepora prisca (Goldfuss?) Nicholson. See Reteporina prisca (Goldfuss?) (Nicholson).

Retepora Trentonensis Nicholson. See Phylloporina trentonensis (Nicholson).

Reteporella Simpson. See Reteporidra.

Reteporella adnata Simpson. See Reteporidra adnata (Hall).

Reteporella undulata Simpson. See Reteporidra perundata (Hall).

RETEPORIDRA.[1] Genotype: Reteporella undulata Simpson = Fenestella perundata Hall.

1895. Reteporella. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 702, 725; Forty-seventh Ann. Rep. New York State Museum, pp. 896, 919.

1897. Reteporella. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 503, 521.

1897. Anastomopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 517, 522.

Obs. Anastomopora was made for species resembling Reteporella, but differing in having thickened margins. This is a variable character in this group of species and is of no importance, either specifically or generically. Some specimens of Reteporidra show thickened margins.

Reteporidra adnata (Hall).

1883. Fenestella adnata. Hall, Trans. Albany Institute, X, p. 167 (abstract, 1881, p. 25).

1886. Fenestella (Polypora) adnata. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xli, 1–8, 10.

1887. Fenestella (Polypora) adnata. Hall and Simpson, Pal. New York, VI, p. 152, pl. xli, 1–8, 10.

1897. Reteporella adnata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. i, 4, 5.

Hamilton: Falls of the Ohio.

Reteporidra cinctuta (Hall).

1884. Fenestella cinctuta. Hall, Thirty-sixth Ann. Rep. New York State Museum, p. 62.

1885. Lyropora cinctura. Hall, Rep. State Geologist New York for the year 1884, pl. i, 2.

1887. Fenestella (Lyropora) cinctuta. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 69.

1888. Fenestella (Lyropora) cinctuta. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. ix, 16; Forty-first Ann. Rep. New York State Museum, pl. ix, 16.

1897. Anastomopora cinctuta. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. ix, 20–23.

1890. Phyllopora ? sp. undet. Ulrich, Geol. Sur. Illinois, VIII, pl. lv, 10.

Hamilton: Geneseo, New York; West Williams and Widder, Ontario.

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[1] Proposed for Reteporella, preoccupied by Busk. See Challenger Report X, 1884, p. 126.

Reteporidra perundata (Hall).

1883. Fenestella perundata. Hall, Trans. Albany Institute, X, p. 169 (abstract, 1881, p. 27).

1883. Fenestella (Polypora) perundata. Hall, Rep. State Geologist New York for the year 1882, pl. xxxi, 7–13.

1885. Polypora perundata. Hall, Rep. State Geologist New York for the year 1884, pl. i, 3.

1887. Fenestella (Polypora) perundata. Hall and Simpson, Pal. New York, VI, p. 163, pl. xxxviii, 7–13.

1890. Phyllopora superba. Ulrich, Geol. Sur. Illinois, VIII, p. 613, pl. xliv, 6–6*c*, pl. lv, 9, 9*a*.

1897. Reteporella undulata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. i, 1–3.

Hamilton: Erie County, New York.

Obs. Hall and Simpson give this as occurring in the Upper Helderberg at Walpole, Ontario, but this is very probably an error.

RETEPORINA D'Orbigny. Genotype: Retepora prisca Goldfuss.

1850. Reteporina. D'Orbigny, Prodr. de Pal., I, p. 101.

1885. Reteporina. Hall, Rep. State Geologist New York for the year 1884, p. 35.

1889. Reteporina. Miller, North American Geol. Pal., p. 320.

1894. Reteporina. Počta, Syst. Sil. Bohême, VIII, t. 1, p. 80.

1895. Reteporina. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, p. 725; Forty-seventh Ann. Rep. New York State Mus., p. 919.

1897. Reteporina. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 504, 521.

1899. Reteporina. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 161.

Reteporina coalescens (Hall and Simpson).

1887. Fenestella (Reteporina) coalescens. Hall and Simpson, Pal. New York, VI, p. 120.

Upper Helderberg: Walpole, Ontario.

Reteporina flexuosa (Ulrich).

1890. Fenestella flexuosa. Ulrich, Geol. Sur. Illinois, VIII, p. 548, pl. li, 4–4*c*.

1894. Fenestella flexuosa. Keyes, Missouri Geol. Surv., V, p. 24.

Chester: Sloans Valley, Kentucky.

Reteporina hamiltonensis (Prout).

1866. Retepora hamiltonensis. Prout, Trans. St. Louis Acad. Sci., II, p. 412.

1866. Polypora Hamiltonensis. Prout, Geol. Surv. Illinois, II, p. 423, pl. xxi, 6, 6*a*.

1876–7. Protoretepora (Polypora) hamiltoniana. De Koninck, Rech. sur les Foss. Paleoz. de la Nouv. Galles des Sud, III, p. 179; 1898, Engl. transl., Mem. Geol. Surv. New South Wales, Pal., No. 6, p. 137.

1889. Reteporina hamiltonensis. Miller, North American Geol. Pal., p. 320.

Hamilton: Buffalo, Iowa; Rock Island, Illinois.

Reteporina pertollata Hall (not defined).

1885. Reteporina pertollata. Hall, Rep. State Geologist New York for the year 1884, pl. i, 1.

Reteporina perundulata (Hall).

1884. Fenestella perundulata. Hall, Thirty-sixth Ann. Rep. New York State Mus., p. 63.

1887. Fenestella perundulata. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 43, pl. ii, 1–14.

1889. Reteporina perundulata. Miller, North American Geol. Pal., p. 320.

Reteporina perundulata (Hall)—Continued.

1897. Reteporina perundulata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. i, 8.
Hamilton: Moscow, New York.

Reteporina phillipsi (Nicholson).

1874. Retepora Phillipsi. Nicholson, Geol. Mag., new ser., I, p. 163, pl. ix, 21.
1874. Retepora Phillipsi. Nicholson, Pal. Province Ontario, p. 102, fig. 39.
1889. Reteporina phillipsi. Miller, North American Geol. Pal., p. 320.
Upper Helderberg: Port Colborne, Ontario.

Reteporina prisca (Goldfuss ?) (Nicholson).

1826. Retepora prisca. Goldfuss, Petref. Germaniæ, p. 103, pl. xxxvi, 19.
1874. Retepora prisca Goldfuss. Nicholson, Pal. Province Ontario, p. 101, fig. 38.
1889. Reteporina prisca. Miller, North American Geol. Pal., p. 320.
1898. Retepora prisca (Goldfuss) Nicholson. Whiteaves, Contr. Canadian Pal., I, part V, p. 379.
Upper Helderberg: Ridgeway and Port Colborne, Ontario.
Hamilton: Arkona, Ontario.
Obs. It is scarcely probable that Nicholson's specimens are cospecific with Goldfuss's.

Reteporina rhombifera (Hall).

1883. Fenestella rhombifera. Hall, Trans. Albany Institute, X, p. 174 (abstract, 1881, p. 32).
1886. Fenestella rhombifera. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. l, 18, 19.
1887. Fenestella (Reteporina) rhombifera. Hall and Simpson, Pal. New York, VI, p. 120, pl. l, 18, 19.
Upper Helderberg: Ontario, Canada. (In the Trans. Albany Institute, X, p. 174, the locality is given as Le Roy, New York.)

Reteporina striata (Hall).

1884. Fenestella strata. Hall, Thirty-sixth Ann. Rep. New York State Mus., p. 72.
1887. Fenestella (Reteporina) striata. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 45, pl. iii, 1–6.
1897. Reteporina striata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. i, 6, 7.
1899. Reteporina striata. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 161, fig. 50.
Hamilton: Moscow, New York.

RHABDOMESON Young and Young. Genotype: Millepora gracilis Phillips.

1874. Rhabdomeson. Young and Young, Ann. Mag. Nat. Hist., ser 4, XIII, p. 337.
1875. Rhabdomeson. Young and Young, Ann. Mag. Nat. Hist., ser. 4, XV, p. 334.
1885. Rhabdomeson. Vine, Proc. Yorkshire Geol. Polyt. Soc., IX, p. 91.
1890. Rhabdomeson. Ulrich, Geol. Surv. Illinois, VIII, p. 402.
Obs. No American species has yet been referred to this genus.

RHINIDICTYA Ulrich. Genotype: Rhinidictya nicholsoni Ulrich.

1847. Stictopora (in part). Hall, Pal. New York, I, p. 73.
1882. Rhinidictya. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 152.
1887. Rhinidictya. Hall and Simpson, Pal. New York, VI, p. xx.
1889. Rhinidictya. Miller, North American Geol. Pal., p. 320.
1893. Rhinidictya. Ulrich, Geol. Minnesota, III, p. 124.

RHINIDICTYA Ulrich—Continued.

1896. Rhinidictya. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 279.

1897. Rhinidictya. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 605.

1890. Stictopora (not of Hall). Ulrich, Geol. Sur. Illinois, VIII, p. 388.

Rhinidictya basalis (Ulrich).

1882. Stictopora basalis. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 169, pl. viii, 4, 4*a*.

1893. Rhinidictya basalis. Ulrich, Geol. Minnesota, III, p. 128.

Trenton (Stones River): Shelbyville, Tennessee.

Rhinidictya exigua Ulrich.

1890. Rhinidictya exigua. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 184, fig. 9.

1893. Rhinidictya exigua. Ulrich, Geol. Minnesota, III, p. 131, pl. viii, 6–10.

Trenton (Stones River and Black River): Minneapolis, St. Paul, and Fountain, Minnesota.

Rhinidictya fenestrata (Hall).

1847. Stictopora fenestrata. Hall, Pal. New York, I, p. 16, pl. iv, 4*a–e*.

1850. Sulcopora fenestrata. D'Orbigny, Prodr. de Pal., I, 22.

1890. Rhinidictya fenestrata. Ulrich, Geol. Sur. Illinois, VIII, p. 492.

Chazy: Chazy and Galway, New York.

Rhinidictya fidelis (Ulrich).

1886. Stictopora fidelis (in part). Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Surv. Minnesota, p. 68.

1893. Rhinidictya fidelis. Ulrich, Geol. Minnesota, III, p. 134, pl. vi, 7–7*b*, 8.

1893. Eurydictya multipora (in part). Ulrich, Geol. Minnesota, III, p. 139, pl. vii, 24, 29–31.

Trenton (Stones River): Minneapolis, Minnesota.

Rhinidictya grandis Ulrich.

1893. Rhinidictya grandis. Ulrich, Geol. Minnesota, III, p. 136, pl. v, 11, 12, pl. vi, 19, 20.

Trenton (Stones River): Dixon, Illinois; Beloit, Mineral Point, and Janesville, Wisconsin.

Rhinidictya ? granulosa Hall and Simpson. See Dicranopora granulosa (Hall).

Rhinidictya granulosa Simpson. See Dicranopora granulosa (Hall).

Rhinidictya humilis Ulrich. See Pachydictya pumila Ulrich.

Rhinidictya lata (Ulrich).

1882. Dicranopora lata. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 166, pl. vi, 16, 16*a*.

Cincinnati (Richmond): Oxford and Clarksville, Ohio.

Rhinidictya minima Ulrich.

1890. Rhinidictya minima. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 183, fig. 8.

1893. Rhinidictya minima. Ulrich, Geol. Minnesota, III, p. 132, pl. v, 13–18.

Trenton: Cannon Falls, Minnesota.

Rhinidictya minima-modesta Ulrich.

1893. Rhinidictya minima var. modesta. Ulrich, Geol. Minnesota, III, p. 133, pl. v, 17.

Trenton: Cannon Falls, Minnesota.

Rhinidictya mutabilis (Ulrich).

1886. Stictopora mutabilis (in part). Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 66.
1889. Stictopora mutabilis. Miller, North American Geol. Pal., fig. 517 (p. 324).
1890. Stictopora mutabilis. Ulrich, Geol. Sur. Illinois, VIII, figs. 2*c*–*h* (p. 304).
1893. Rhinidictya mutabilis. Ulrich, Geol. Minnesota, III, p. 125, pl. vi, 1–6, 12, 13, pl. vii, 10–23, 25–28, pl. viii, 1–3.
1897. Rhinidictya mutabilis. Whiteaves, Pal. Foss, III, p. 240.
1886. Stictopora mutabilis var. minor. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 67.

Trenton (Stones River, Black River, and Trenton): Minneapolis, St. Paul, Cannon Falls, and other localities in Minnesota; Decorah, Iowa.

Rhinidictya mutabilis-major (Ulrich).

1886. Stictopora mutabilis var. major. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 66.
1893. Rhinidictya mutabilis var. major. Ulrich, Geol. Minnesota, III, p. 127, pl. vii, 22, 23, 25–28, 32.

Trenton (Black River): St. Paul, Minneapolis, and Cannon Falls, Minnesota.

Rhinidictya mutabilis-senilis Ulrich.

1893. Rhinidictya mutabilis var. senilis. Ulrich, Geol. Minnesota, III, p. 127, pl. vi, 2, 3, pl. vii, 16, 17.

Trenton (Black River): St. Paul, Minnesota.

Rhinidictya nashvillensis (Miller).

1880. Bythopora nashvillensis. Miller, Jour. Cincinnati Soc. Nat. Hist., III, p. 143, pl. iv, 4, 4*a*.
1889. Bythopora nashvillensis. Miller, North American Geol. Pal., fig. 462 (p. 295).
1890. Rhinidictya nashvillensis. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 185.

Trenton: Near Nashville, Tennessee (?).

Obs. The locality given above is probably incorrect. The species occurs in the Pierce limestone (Stones River) at Murfreesboro, Tennessee.

Rhinidictya neglecta Ulrich.

1886. Stictopora paupera (in part). Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 69.
1893. Rhinidictya neglecta. Ulrich, Geol. Minnesota, III, p. 130, pl. v., 22–25.

Trenton: Frankfort, Boyle, and Mercer counties, Kentucky; Nashville, Tennessee; St. Paul, Minnesota.

Rhinidictya neglecta-canadensis Ulrich.

1893. Rhinidictya neglecta var. canadensis. Ulrich, Geol. Minnesota, III, p. 130.

Trenton: Ottawa, Canada.

Rhinidictya nicholsoni Ulrich.

1882. Rhinidictya nicholsoni. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 170, pl. viii, 6–6*b*.
1889. Rhinidictya nicholsoni. Miller, North American Geol. Pal., fig. 507 (p. 320).

Trenton (Stones River): High Bridge, Kentucky.

Rhinidictya obliqua (Ulrich) Whiteaves.

1897. Rhinidictya obliqua Ulrich. Whiteaves, Pal. Foss., III, p. 240.

Trenton: Deer Island, Lake Winnipeg, Canada.

Obs. Though unquestionably distinct, this species requires further work before it can be regarded as valid.

Rhinidictya parallela (James).

1878. Ptilodictya parallela. James, Paleontologist, No. 1, p. 5.

1882. Rhinidictya parallela. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 170.

1878. Ptilodictya granulosa. James, Paleontologist, No. 1, p. 4.

Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

Obs. Although the description of P. granulosa precedes that of P. parallela, the latter name much better defines the usual appearance of the species, and therefore deserves to be the one retained.

Rhinidictya paupera Ulrich.

1886. Stictopora paupera (in part). Fourteenth Ann. Rep. Geol. Nat. Hist. Surv. Minnesota, p. 69.

1893. Rhinidictya paupera. Ulrich, Geol. Minnesota, III, p. 129, pl. v, 19–21.

Trenton (Black River): St. Paul and Cannon Falls, Minnesota; Decorah, Iowa.

Rhinidictya pediculata Ulrich.

1893. Rhinidictya pediculata. Ulrich, Geol. Minnesota, III, p. 137, pl. vii, 1–5.

Trenton (Stones River): Minneapolis, Minnesota.

Rhinidictya trentonensis (Ulrich).

1882. Dicranopora trentonensis. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 167, pl. vi, 15, 15*a*.

1893. Rhinidictya trentonensis. Ulrich, Geol. Minnesota, III, p. 135, pl. vi, 14–18, pl. vii, 6–9.

1886. Stictopora fidelis (in part). Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 68.

Trenton (Stones River): Lebanon, Tennessee; Minneapolis, Minnesota; Janesville, Wisconsin; Rockton, Illinois.

RHINOPORA Hall. Genotype: Rhinopora verrucosa Hall.

1852. Rhinopora. Hall, Pal. New York, II, p. 48.

1887. Rhinopora. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 166.

1889. Rhinopora. Miller, North American Geol. Pal., p. 321.

1890. Rhinopora. Ulrich, Geol. Surv. Illinois, VIII, p. 388.

1896. Rhinopora. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 280.

1897. Rhinopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 540.

Rhinopora curvata Ringueberg. See Rhinopora verrucosa Hall.

Rhinopora frondosa Hall and Whitfield. See Rhinopora verrucosa Hall.

Rhinopora prima Whitfield.

1897. Rhinopora prima. Whitfield, Bull. American Mus. Nat. Hist., IX, p. 177, pl. iv, 5, 6.

Calciferous: Fort Cassin, Vermont.

Obs. This is probably not a bryozoan.

Rhinopora ? tuberculosa Hall.

1852. Rhinopora tuberculosa. Hall, Pal. New York, II, p. 170, pl. xlE, 4*a–c*.

Niagara: Lockport, New York.

Rhinopora ? tubulosa Hall.

1852. Rhinopora tubulosa. Hall, Pal. New York, II, p. 49, pl. xix, 2*a–c*.
Clinton: Sodus, Wayne County, and Reynales Basin, New York.

Rhinopora venosa Spencer. See Rhinopora verrucosa Hall.

Rhinopora verrucosa Hall.

1852. Rhinopora verrucosa. Hall, Pal. New York, II, p. 48, pl. xix, 1*a–c*.
1874. Rhinopora verrucosa. Nicholson and Hinde, Canadian Jour., new ser., XIV, p. 141.
1875. Rhinopora verrucosa. Nicholson, Pal. Province Ontario, p. 44, fig. 19, 1, 1*a*.
1887. Rhinopora verrucosa. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 166; ibid., III, 1888, pl. xv, 13.
1889. Rhinopora verrucosa. Foerste, Proc. Boston Soc. Nat. Hist., xxiv, p. 332.
1895. Rhinopora verrucosa. Foerste, Geol. Surv. Ohio, VII, p. 599, pl. xxviii, 13*a–c*.
1875. Escharina ? distorta. James, Paleontologist, No. 3, p. 21.
*1884. Rhinopora venosa. Spencer, Trans. St. Louis Acad. Sci., IV, p. 604, pl. vii, 3.
*1884. Rhinopora venosa. Spencer, Bull. Mus. Univ. State Missouri, I, p. 54, pl. vii, 3.
*1886. Rhinopora curvata. Ringueberg, Bull. Buffalo Soc. Nat. Hist., V, p. 19, pl. ii, 14.
Clinton: Flamboro Head and Dundas, Canada; Cumberland Gap, Tennessee; Collinsville, Alabama; Hanover, Indiana (Foerste); Dayton, Fair Haven, Todds Fork, and Yellow Springs, Ohio.
Obs. The citations preceded by the (*) refer to very poor descriptions of poorly preserved fossils, but there is scarcely any doubt but that the names are synonyms.

RHOMBOPORA Meek. Genotype: Rhombopora lepidodendroides Meek.

1872. Rhombopora. Meek, Pal. Eastern Nebraska, p. 141.
1877. Rhombopora. Etheridge, Jun., Ann. Mag. Nat. Hist., ser. 4, XX, p. 36.
1883. Rhombopora. Vine, Proc. Yorkshire Geol. Polyt. Soc., VIII, p. 105.
1884. Rhombopora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 26.
1885. Rhombopora. Vine, Proc. Yorkshire Geol. Polyt. Soc., IX, p. 93.
1887. Rhombopora. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 71.
1889. Rhombopora. Miller, North American Geol. Pal., p. 321.
1890. Rhombopora. Ulrich, Geol. Surv. Illinois, VIII, pp. 402, 647.
1896. Rhombopora. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 281.
1897. Rhombopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 550.
1899. Rhombopora. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 164.
Vincularia of some foreign authors.

Rhombopora angustata Ulrich.

1890. Rhombopora angustata. Ulrich, Geol. Surv. Illinois, VIII, p. 652, pl. lxx, 6, 6*a*.
Keokuk: Kings Mountain, Kentucky.

Rhombopora armata Ulrich.

1884. Rhombopora armata. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 31, pl. i, 5, 5*a*.
Chester: Sloans Valley, Kentucky.

Rhombopora ? asperrima (Ulrich, in press) Miller. See Rhombopora ? asperula Ulrich.

Rhombopora ? asperula Ulrich.

1890. Rhombopora ? asperula. Ulrich, Geol. Surv. Illinois, VIII, p. 656, pl. lxx, 9–9*e*.

1889. Rhombopora ? asperrima (in error for asperula). (Ulrich, in press), Miller, North American Geol. Pal., p. 321.

Keokuk: Keokuk, Iowa; Nauvoo and Warsaw, Illinois.

Rhombopora attenuata Ulrich.

1890. Rhombopora attenuata. Ulrich, Geol. Surv. Illinois, VIII, p. 655, pl. lxx, 7.

1894. Rhombopora attenuata. Keyes, Missouri Geol. Surv., V, p. 34.

Keokuk: Warsaw, Illinois.

Rhombopora confluens Ulrich. See Acanthoclema confluens (Ulrich).

Rhombopora crassa Ulrich.

1884. Rhombopora crassa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 28, pl. i, 2–2*b*.

1894. Rhombopora crassa. Keyes, Missouri Geol. Surv., V, p. 34.

Coal Measures: Kansas City, Missouri.

Rhombopora decipiens Ulrich.

1890. Rhombopora decipiens. Ulrich, Geol. Surv. Illinois, VIII, p. 657, pl. lxxi, 3–3*d*.

St. Louis: Monroe County, Illinois.

Rhombopora dichotoma Ulrich.

1890. Rhombopora dichotoma. Ulrich, Geol. Surv. Illinois, VIII, p. 650, pl. lxx, 13–13*b*.

1894. Rhombopora dichotoma. Keyes, Missouri Geol. Surv., V, p. 33.

Burlington: Burlington, Iowa.

Keokuk: Warsaw, Illinois.

Rhombopora elegantula Ulrich.

1884. Rhombopora elegantula. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 33, pl. i, 3–3*b*.

1890. Anisotrypa elegantula. Ulrich, Geol. Surv. Illinois, VIII, p. 447.

Keokuk: Kings Mountain, Kentucky.

Rhombopora exigua Ulrich.

1890. Rhombopora exigua. Ulrich, Geol. Surv. Illinois, VIII, p. 651, pl. lxx, 10, 10*a*.

Burlington: Burlington, Iowa.

Rhombopora exilis (Dawson).

1868. Stenopora exilis. Dawson, Acadian Geology, p. 287.

1878. Stenopora exilis. Dawson, Acadian Geology, ed. 3, p. 287, fig. 85*a*.

1889. Stenopora exilis. Miller, North American Geol. Pal., fig. 218 (p. 203).

Carboniferous: Windsor and Stewiacke, Nova Scotia.

Rhombopora gracilis Ulrich.

1890. Rhombopora gracilis. Ulrich, Geol. Surv. Illinois, VIII, p. 651, pl. lxx, 11–11*b*.

Burlington: Burlington, Iowa.

Rhombopora granulifera Ulrich. See Batostomella granulifera (Hall).

Rhombopora Hamiltonensis Nicholson and Lyddeker. See Streblotrypa hamiltonensis (Nicholson).

Rhombopora hexagona Grabau. See Orthopora hexagona (Hall and Simpson).

Rhombopora immersa Grabau. See Orthopora immersa (Hall and Simpson).

Rhombopora incrassata Ulrich.

1888. Rhombopora incrassata. Ulrich, Bull. Denison Univ., IV, p. 89, pl. xiv, 16, ? 16*a*.

1890. Rhombopora incrassata. Ulrich, Geol. Surv. Illinois, VIII, p. 652, pl. lxx, 12–12*d*.

Waverly: Lodi, Ohio.

Keokuk: Kings Mountain and Button Mole Knob, near Louisville, Kentucky.

Rhombopora lepidodendroides Meek.

1866. Stenopora columnaris (not of Schlotheim, 1813) (in part). Geinitz, Carb. und Dyas in Nebraska, p. 66.

1872. Rhombopora lepidodendroides. Meek, Pal. Eastern Nebraska, p. 141, pl. vii, 2*a–f*.

1877. Rhombopora lepidodendroides (?). White, Wheeler's United States Geol. Surv., IV, Pal., p. 99, pl. vi, 5*a–d*.

1884. Rhombopora lepidodendroidea. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 27, pl. i, 1–1*b*.

1887. Rhombopora lepidodendroidea. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 73, pl. vii, 3*a*, *b*.

1888. Rhombopora lepidodendroides. Keyes, Proc. Acad. Nat. Sci. Philadelphia, p. 225.

1894. Rhombopora lepidodendroides. Keyes, Missouri Geol. Surv., V, p. 35, pl. xxxiii, 4*a*, *b*.

1896. Rhombopora lepidodendroides. Smith, Proc. American Phil. Soc., XXXV, p. 237.

Coal Measures: Nebraska City and Wyoming, Nebraska. A rather common species at various localities in Nebraska, Kansas, Missouri, Iowa, Illinois, and Ohio.

Rhombopora lineata Grabau. See Orthopora lineata (Hall).

Rhombopora lineinodis Ulrich.

1890. Rhombopora lineinodis. Ulrich, Geol. Surv. Illinois, VIII, p. 649, pl. xlv, 3–3*b*.

Hamilton: Falls of the Ohio.

Rhombopora lineinodis-humilis Ulrich.

1890. Rhombopora lineinodis var. humilis. Ulrich, Geol. Surv. Illinois, VIII, p. 649, pl. xlv, 4, 4*a*.

Hamilton: Falls of the Ohio.

Rhombopora minor Ulrich.

1890. Rhombopora minor. Ulrich, Geol. Surv. Illinois, VIII, p. 659, pl. lxx, 4, 4*a*.

Chester: Sloans Valley and Litchfield, Kentucky.

Rhombopora multipora Foerste.

1887. Rhombopora multipora. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 72, pl. vii, 1*a–c*.

Coal Measures: Flint Ridge, Ohio; Seville, Illinois.

Rhombopora nicklesi Ulrich.

1890. Rhombopora nicklesi. Ulrich, Geol. Surv. Illinois, VIII, p. 661, pl. lxx, 1–1*c*.

Lower Coal Measures: Sparta, Illinois.

Rhombopora ohioensis Ulrich.

1888. Rhombopora ohioensis. Ulrich, Bull. Denison Univ., IV, p. 90, pl. xiv, 15, 15*a*.

1895. Rhombopora ohioensis. Herrick, Geol. Surv. Ohio, VII, pl. xix, 9.

Waverly: Richfield, Lodi, and Moots Run, Ohio.

Rhombopora persimilis Ulrich.

1884. Rhombopora persimilis. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 30, pl. i, 7–7*d*.

1890. Rhombopora persimilis. Ulrich, Geol. Surv. Illinois, VIII, p. 659, pl. lxx, 3.

Chester: Chester, Illinois, and Sloans Valley, Kentucky.

Rhombopora polygona Grabau. See Orthopora polygona (Hall).

Rhombopora pulchella Ulrich.

1884. Rhombopora pulchella. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 31, pl. i, 6, 6*a*.

Chester: Sloans Valley, Kentucky.

Rhombopora regularis Simpson. See Orthopora regularis (Hall).

Rhombopora reticulata Grabau. See Orthopora reticulata (Hall and Simpson).

Rhombopora simulatrix Ulrich.

1890. Rhombopora simulatrix. Ulrich, Geol. Surv. Illinois, VIII, p. 657, pl. lxxi, 2–2*e*.

St. Louis: Columbia and other localities in Monroe County, Illinois.

Rhombopora ? spiralis Ulrich.

1890. Rhombopora ? spiralis. Ulrich, Geol. Surv. Illinois, VIII, p. 656, pl. lxxi, 5–5*d*.

Keokuk: Kings Mountain, Kentucky.

Rhombopora subannulata Ulrich.

1890. Rhombopora subannulata. Ulrich, Geol. Surv. Illinois, VIII, p. 648, pl. xlv, 1–1*i*.

Hamilton: Buffalo, Iowa.

Rhombopora sulcifera Ulrich.

1890. Rhombopora sulcifera. Ulrich, Geol. Surv. Illinois, VIII, p. 649, pl. xlv, 2–2*b*.

Hamilton: Davenport, Iowa.

Rhombopora tabulata Ulrich.

1890. Rhombopora tabulata. Ulrich, Geol. Surv. Illinois, VIII, p. 658, pl. lxx, 2–2*c*.

1894. Rhombopora tabulata. Keyes, Missouri Geol. Surv., V, p. 34.

Chester: Chester and Kaskaskia, Illinois; Sloans Valley, Kentucky.

Rhombopora tenuirama Ulrich.

1890. Rhombopora tenuirama. Ulrich, Geol. Surv. Illinois, VIII, p. 660, pl. lxx, 8–8*b*.

1894. Rhombopora tenuirama. Keyes, Missouri Geol. Surv., V, p. 34.

Chester: Kaskaskia, Illinois; Sloans Valley, Kentucky.

Rhombopora tortalinea Grabau. See Orthopora tortalinea (Hall).

Rhombopora transversa Grabau. See Orthopora transversa (Hall).

Rhombopora transversa Simpson. See Orthopora hexagona (Hall and Simpson).

Rhombopora transversalis Ulrich.

1890. Rhombopora transversalis. Ulrich, Geol. Surv. Illinois, VIII, p. 654, pl. lxxi, 4–4*b*.

1894. Rhombopora transversalis, Keyes, Missouri Geol. Surv., V, p. 34.

Keokuk: Plymouth, Nauvoo, and Warsaw, Illinois.

Rhombopora varia (Ulrich, in press) Miller. See Rhombopora varians Ulrich.

Rhombopora varians Ulrich.

1890. Rhombopora varians. Ulrich, Geol. Surv. Illinois, VIII, p. 653, pl. lxxi, 1–1*f*.

1889. Rhombopora varia (in error for varians). (Ulrich, in press), Miller North American Geol. Pal., p. 321.

1894. Rhombopora varians. Keyes, Misouri Geol. Surv., V, p. 33.

Keokuk: Near Plymouth, near Whitehall, Warsaw, and Nauvoo, Illinois.

Rhombopora wortheni Urich.

1884. Rhombopora wortheni. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VII, p. 32, pl. i, 4–4*b*.

St. Louis: Somerset, Kentucky.

RHOPALONARIA Ulrich. Genotype: Rhopalonaria venosa Ulrich.

1879. Ropalonaria. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 26.

1882. Ropalonaria. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V. p. 149.

1884. Ropalonaria. Vine, Ann. Mag. Nat. Hist., ser. 5, XIV, p. 84, fig. iv.

1889. Rhopalonaria. Miller, North American Geol. Pal., p. 321.

1890. Rhopalonaria. Ulrich, Geol. Surv. Illinois, VIII, p. 367.

1897. Rhopalonaria. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 603.

Rhopalonaria pertenuis Ulrich. See Stomatopora delicatula James.

Rhopalonaria venosa Ulrich.

1879. Ropalonaria venosa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., II, p. 26, pl. vii, 24, 24*a*.

1889. Rhopalonaria venosa. Miller, North American Geol. Pal., fig. 511 (p. 321).

1893. Rhopalonaria venosa. Ulrich, Geol. Minnesota, III, p. 114, fig. 8*e*.

1897. Rhopalonaria venosa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 221 (p. 603).

Cincinnati (Lorraine and Richmond): Clarksville, Waynesville, Oregonia and Hanover, Ohio; Versailles, Indiana.

Ropalonaria. See Rhopalonaria.

Rosacilla F. A. Roemer. See Berenicea Lamouroux.

Sagenella Hall. See Berenicea Lamouroux.

Sagenella ambigua Walcott. Not recognizable.

1883. Sagenella ambigua. Walcott, Trans. Albany Institute, X. p. 22, pl. i, 3, 3*a*.

Utica Slate: Trenton, New York.

Sagenella elegans Hall. See Berenicea elegans (Hall).

Sagenella membranacea Hall. See Berenicea membranacea (Hall).

Sagenella striata James. See Escharopora falciformis (Nicholson).

SCALARIPORA Hall. Genotype: Scalaripora scalariformis Hall.

1883. Scalaripora. Hall, Trans. Albany Institute, X, p. 159 (abstract, 1881, p. 17).
1887. Scalaripora. Hall and Simpson, Pal. New York, VI, p. xxi.
1889. Scalaripora. Miller, North American Geol. Pal., p. 321.
1890. Scalaripora. Ulrich, Geol. Surv. Illinois, VIII, p. 387.
1897. Scalaripora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 532.

Scalaripora approximata Ulrich.

1890. Scalaripora approximata. Ulrich, Geol. Surv. Illinois, VIII, p. 508, pl. xliii, 3.
Hamilton; Near Alpena, Michigan.

Scalaripora canadensis Whiteaves.

1898. Scalaripora Canadensis. Whiteaves, Contr. Canadian Pal., I, p. 378, pl. xlviii, 10–10*b*.
Hamilton: Thedford, Ontario.

Scalaripora scalariformis Hall.

1883. Scalaripora scalariformis. Hall, Trans. Albany Institute, X, p. 159 (abstract, 1881, p. 18).
1886. Scalaripora scalariformis. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxix, 4–8.
1887. Scalaripora scalariformis. Hall and Simpson, Pal. New York, VI, p. 100, pl. xxix, 4–8.
1897. Scalaripora scalariformis. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xii, 16–20.
Hamilton: Falls of the Ohio.

Scalaripora separata Ulrich.

1890. Scalaripora separata. Ulrich, Geol. Surv. Illinois, VIII, p. 507, pl. xliii, 2.
Hamilton: Thunder Bay, Michigan.

Scalaripora subconcava Hall.

1883. Scalaripora subconcava. Hall, Trans. Albany Institute, X, p. 160 (abstract, 1881, p. 18).
1886. Scalaripora subconcava. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxix, 1–3.
1887. Scalaripora subconcava. Hall and Simpson, Pal. New York, VI, p. 100, pl. xxix, 1–3.
1897. Scalaripora subconcava. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xii, 21, 22.
Hamilton: Falls of the Ohio.

SCENELLOPORA Ulrich. Genotype: Scenellopora radiata Ulrich.

1882. Scenellopora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 150.
1889. Scenellopora. Miller, North American Geol. Pal., p. 322.
1890. Scenellopora. Ulrich, Geol. Surv. Illinois, VIII, p. 368.
1896. Scenellopora. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 268.
1897. Scenellopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 593.

Scenellopora radiata Ulrich.

1882. Scenellopora radiata. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 158, pl. vi, 6–6*b*.
1897. Scenellopora radiata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 194, 195 (p. 593).
Trenton (Stones River): Knoxville, Tennessee.

SCEPTROPORA Ulrich. Genotype: Sceptropora facula Ulrich.

1888. Sceptropora. Ulrich, American Geologist, I, p. 228.
1889. Sceptropora. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 46.
1889. Sceptropora. Miller, North American Geol. Pal., p. 322.
1890. Sceptropora. Ulrich, Geol. Sur. Illinois, VIII, p. 400.
1896. Sceptropora. Ulrich, Zittel's Textb. Pal. (Eng. ed.), p. 281.
1897. Sceptropora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 548.

Sceptropora facula Ulrich.

1888. Sceptropora facula. Ulrich, American Geologist, I, p. 229, fig. 1.
1889. Sceptropora facula. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 46, fig. 2.
1890. Sceptropora facula. Ulrich, Geol. Sur. Illinois, VIII, p. 401, fig. 15.
1895. Sceptropora facula. Whiteaves, Pal. Foss., III, Part II, p. 117.
1897. Sceptropora facula. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 116 (p. 549).

Cincinnati (Richmond): Stony Mountain, Manitoba; Wilmington and Savannah, Illinois.

Sceptropora fustiformis Ulrich.

1889. Sceptropora fustiformis. Ulrich, Contr. Micro-Pal. Cambro-Sil., Part II, p. 46.

Clinton: Hamilton, Ontario.

SELENOPORA Hall. Genotype: Lichenalia circincta Hall.

1886. Selenopora. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, explanation pl. xxv.
1887. Selenopora. Hall and Simpson, Pal. New York, VI, p. xvii.
1889. Selenopora. Miller, North American Geol. Pal., p. 322.
1890. Selenopora. Ulrich, Geol. Sur. Illinois, VIII, p. 384.
1896. Selenopora. Ulrich, Zittel's Textb. Pal. (Eng. ed.), p. 270.
1897. Selenopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 557.

Selenopora circincta (Hall).

1883. Lichenalia circincta. Hall, Trans. Albany Institute, X, p. 153 (abstract, 1881, p. 11).
1886. Selenopora circincta. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxv, 13–15.
1887. Lichenalia (Selenopora) circincta. Hall and Simpson, Pal. New York, VI, p. 86, pl. xxv, 13–15.
1897. Selenopora circincta. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxiv, 4–6.

Hamilton: Falls of the Ohio.

Selenopora complexa (Hall).

1883. Lichenalia complexa. Hall, Trans. Albany Institute, X, p. 153 (abstract, 1881, p. 11).
1886. Lichenalia complexa. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxxi, 19, 20.
1887. Lichenalia (Selenopora) complexa. Hall and Simpson, Pal. New York, VI, p. 87, pl. xxxi, 19, 20.
1897. Selenopora complexata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xxiv, 7.

Hamilton: Falls of the Ohio. (In the Trans. Albany Institute, X, p. 153, the locality is given as Onondaga Valley, New York.)

Selenopora complexata Simpson. See Selenopora complexa (Hall).

SEMICOSCINIUM Prout. Genotype: Semicoscinium rhomboideum Prout.

1859. Semicoscinium. Prout, Trans. St. Louis Acad. Sci., I, p. 443.
1886. Semicoscinium. Ulrich, Contr. American Pal., I, p. 4.
1889. Semicoscinium. Miller, North American Geol. Pal., p. 322.
1890. Semicoscinium. Ulrich, Geol. Sur. Illinois, VIII, pp. 395, 555.
1895. Semicoscinium. Simpson, Thirteenth Ann. Rep. New York State Geologist for the year 1893, p. 705; Forty-seventh Ann. Rep. New York State Mus., p. 899.
1896. Semicoscinium. Ulrich, Zittel's Textb. Pal. (Eng. ed.), p. 281.
1897. Semicoscinium. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 509.
1874. Cryptopora. Nicholson, Canadian Jour., new ser., XIV, p. 131.
1874. Cryptopora. Nicholson, Ann. Mag. Nat. Hist., ser. 4, XIII, p. 77.
1874. Cryptopora. Nicholson, Pal. Province Ontario, p. 102.
1885. Cryptopora. Hall, Rep. State Geologist New York for the year 1884, p. 40.
1886. Cryptopora. Ulrich, Contr. American Pal., I, p. 6.
1874. Carinopora. Nicholson, Canadian Jour., new ser., XIV, p. 132.
1874. Carinopora. Nicholson, Ann. Mag. Nat. Hist., ser. 4, XIII, p. 81.
1874. Carinopora. Nicholson, Pal. Province Ontario, p. 109.
1885. Carinopora. Hall, Rep. State Geologist New York for the year 1884, p. 38.
1886. Carinopora. Ulrich, Contr. American Pal., I, p. 4.
1895. Cycloporina. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 711, 725; Forty-seventh Ann. Rep. New York State Mus., pp. 905, 919.
1897. Cycloporina. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 504, 520.

Semicoscinium acmeum (Hall).

1876. Fenestella acmea. Hall, Twenty-eighth Ann. Rep. New York State Mus. (documentary edition), pl. xii, 10–13, 14 (sp.?); ibid. (Museum edition, 1879), p. 124, pl. xii, 10–14.
1882. Fenestella acmea. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist. p. 250, pl. xi, 10–14.
1890. Semicoscinium acmea. Ulrich, Geol. Sur. Illinois, VIII, p. 355.
Niagara: Waldron, Indiana.

Semicoscinium biimbricatum (Hall).

1883. Fenestella biimbricata. Hall, Trans. Albany Institute, X, p. 173 (abstract, 1881, p. 31).
1886. Fenestella biimbricata. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xlviii, 6–11.
1887. Fenestella biimbricata. Hall and Simpson, Pal. New York, VI, p. 122, pl. xlviii, 6–11.
1897. Fenestella biimbricata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. ii, 11.
Hamilton: Falls of the Ohio.

Semicoscinium biserrulatum (Hall).

1883. Fenestella biserrulata. Hall, Trans. Albany Institute, X, p. 172 (abstract, 1881, p. 30).
1886. Fenestella biserrulata. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. l, 6–11.

Semicoscinium biserrulatum (Hall)—Continued.

1887. Fenestella biserrulata. Hall and Simpson, Pal. New York, VI, p. 128, pl. 1, 6–11.

Hamilton: Falls of the Ohio.

Semicoscinium ? cleis (Hall).

1879. Fenestella Cleis. Hall, Thirty-second Ann. Rep. New York State Mus., p. 173 (reprint, 1880, p. 35).

Lower Helderberg: Clarksville, New York.

Semicoscinium coronis (Hall).

1879. Fenestella Coronis. Hall, Thirty-second Ann. Rep. New York State Mus., p. 171 (reprint, 1880, p. 33).

1883. Fenestella Coronis. Hall, Rep. State Geologist New York for the year 1882, pl. xxi, 10–13.

1887. Fenestella Coronis. Hall and Simpson, Pal. New York, VI, p. 51, pl. xxi, 10–13.

Lower Helderberg: Clarksville, New York.

Semicoscinium davidsoni (Nicholson).

1875. Fenestella Davidsoni. Nicholson. Geol. Mag., new ser., II, p. 36, pl. ii, 3–3*b*.

1875. Fenestella Davidsoni. Nicholson, Pal. Province of Ontario, p. 81, pl. iii, 3*a–c*.

Hamilton: Arkona and Widder, Ontario.

Semicoscinium eriense Prout.

1860. Semicoscinium Eriense. Prout, Trans. St. Louis Acad. Sci., I, p. 579.

Devonian (?): Cunningham Island, Lake Erie.

Semicoscinium exornatum (Hall).

1884. Fenestella exornata. Hall, Thirty-sixth Ann. Rep. New York State Mus., p. 67.

1887. Fenestella exornata. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 49, pl. iv, 6–13, pl. v, 1–13.

1897. Fenestella exornata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. ii, 7.

1884. Fenestella brevilinea. Hall, Thirty-sixth Ann. Rep. New York State Mus., p. 70.

Hamilton: Alden and Moscow, New York.

Semicoscinium graniferum (Hall).

1883. Fenestella (Hemitrypa) granifera. Hall, Trans. Albany Institute, X, p. 175 (abstract, 1881, p. 33).

1886. Fenestella (Hemitrypa) granifera. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. 1, 12–14, 16.

1887. Fenestella granifera. Hall and Simpson, Pal. New York, VI, p. 125, pl. l. 12–14, 16.

Upper Helderberg: Near Le Roy, New York.

Semicoscinium hindei (Nicholson).

1874. Carinopora Hindei. Nicholson, Ann. Mag. Nat. Hist., ser. 4, XIII, p. 84, fig. 2.

1874. Carinopora Hindei. Nicholson, Pal. Province Ontario, p. 111, fig. 48.

Upper Helderberg: Jarvis, Ontario.

Semicoscinium inflexum (Hall).

1884. Fenestella inflexa. Hall, Thirty-sixth Ann. Rep. New York State Mus., p. 64.

Hamilton: West Bloomfield, New York.

Semicoscinium infraporosa Ulrich. See Fenestrapora infraporosa (Ulrich).

Semicoscinium interruptum (Hall).

1883. Fenestella interrupta. Hall, Trans. Albany Institute, X, p. 174 (abstract, 1881, p. 32).

1886. Fenestella interrupta. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xlviii, 12–17.

1887. Fenestella interrupta. Hall and Simpson, Pal. New York, VI, p. 123, pl. xlviii, 12–17.

Hamilton: Falls of the Ohio.

Semicoscinium labiatum (Hall).

1885. Fenestella labiata. Hall, Rep. State Geologist New York for the year 1884, pl. ii, 18.

1887. Fenestella hemicycla. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 55, pl. vii, 12, 15, 16 (not 13, 14).

1895. Cycloporina hemicycla. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, p. 711; Forty-seventh Ann. Rep. New York State Mus., p. 905.

1897. Cycloporina hemicycla. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 504, pl. iii, 1, 2, 5.

Hamilton: Darien, New York; West Williams, Ontario.

Semicoscinium latijuncturum (Hall).

1883. Fenestella latijunctura. Hall, Trans. Albany Institute, X, p. 173 (abstract, 1881, p. 31).

1886. Fenestella latijunctura. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xlviii, 1–5.

1887. Fenestella latijunctura. Hall and Simpson, Pal. New York, VI, p. 128, pl. xlviii, 1–5.

1897. Fenestella latijunctura. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. ii, 9–10.

Hamilton: Falls of the Ohio.

Semicoscinium lunulatum (Hall).

1883. Fenestella lunulata. Hall, Trans. Albany Institute, X, p. 173 (abstract, 1881, p. 31).

1887. Fenestella lunulata. Hall and Simpson, Pal. New York, VI, p. 121, pl. xlvii, 1–10.

1886. Semicoscinium obliquatum. Ulrich, Contr. American Pal., I, p. 13, pl. i, 5, *5a*.

Hamilton: Falls of the Ohio.

Semicoscinium mirabile (Nicholson).

1874. Cryptopora mirabile. Nicholson, Ann. Mag. Nat. Hist., ser. 4, XIII, p. 79, fig. 1.

1874. Cryptopora mirabile. Nicholson, Pal. Province Ontario, p. 103, fig. 40.

Upper Helderberg: Port Colborne and Wainfleet, Ontario.

Semicoscinium obliquatum Ulrich. See Semicoscinium lunulatum (Hall.)

Semicoscinium permarginatum (Hall).

1883. Fenestella permarginata. Hall, Trans. Albany Institute, X, p. 172 (abstract, 1881, p. 30).

1887. Fenestella permarginata. Hall and Simpson, Pal. New York, VI, p. 127, pl. xlix, 1–10.

Hamilton: Falls of the Ohio.

Semicoscinium planodorsatum Ulrich.

1890. Semicoscinium planodorsatum. Ulrich, Geol. Surv. Illinois, VIII, p. 555, pl. xliv, 3–3*b*.

Hamilton: Falls of the Ohio.

Semicoscinium rhombicum Ulrich.

1890. Semicoscinium rhombicum. Ulrich, Geol. Surv. Illinois, VIII, p. 556, pl. xliv, 4, 4*a*, pl. liv, 8.

Hamilton: Buffalo, Iowa.

Semicoscinium rhomboideum Prout.

1859. Semicoscinium rhomboideum. Prout, Trans. St. Louis Acad. Sci., I, p. 443, pl. xvii, 1–1*f*.

1897. Semicoscinium rhomboideum. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 58 (p. 509).

Hamilton: Falls of the Ohio.

Semicoscinium semirotundum (Hall).

1883. Fenestella semirotunda. Hall, Trans. Albany Institute, X, p. 174 (abstract, 1881, p. 32).

1887. Fenestella semirotunda. Hall and Simpson, Pal. New York, VI, p. 125, pl. xlix, 11–22.

1897. Cycloporina semirotunda. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. iii, 3, 4.

1895. Cycloporina rhomboidea. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, p. 711; Forty-seventh Ann. Rep. New York State Mus., p. 905.

Hamilton: Falls of the Ohio.

Semicoscinium subtortile (Hall).

1884. Fenestella subtortilis. Hall, Thirty-sixth Ann. Rep. New York State Mus., p. 71.

1887. Fenestella subtortilis. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 52.

1888. Fenestella subtortilis. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. ix, 1–5.

Hamilton: Moscow, New York.

Semicoscinium tenuiceps (Hall).

1852. Fenestella prisca (?) (not of Lonsdale nor of Goldfuss). Hall, Pal. New York, II, p. 50, pl. xix, 4*a–m*.

1852. Fenestella tenuiceps. Hall, Pal. New York, II, p. 165, pl. xlD, 2*a–b*.

1890. Semicoscinium tenuiceps. Ulrich, Geol. Surv. Illinois, VIII, p. 355.

Niagara: Lockport, New York.

Semicoscinium thyene (Hall).

1879. Fenestella Thyene. Hall, Thirty-second Ann. Rep. New York State Mus., p. 170 (reprint, 1880, p. 32).

1883. Fenestella Thyene. Hall, Rep. State Geologist New York for the year 1882, pl. xxi, 1–5.

Semicoscinium thyene (Hall)—Continued.

1887. Fenestella Thyene. Hall and Simpson, Pal. New York, VI, p. 50, pl. xxi, 1–5.

1890. Semicoscinium thyene. Ulrich, Geol. Surv. Illinois, VIII, p. 534.

Lower Helderberg: Clarksville, New York.

Semicoscinium tortum (Hall).

1883. Fenestella torta. Hall, Trans. Albany Institute, X, p. 172 (abstract, 1881, p. 30).

Hamilton: Falls of the Ohio.

Semicoscinium tuberculatum Prout.

1859. Semicoscinium tuberculatum. Prout, Trans. St. Louis Acad. Sci., I, p. 579.

Hamilton: Falls of the Ohio.

SEMIOPORA Hall. Genotype: Semiopora bistigmata Hall.

1883. Semiopora. Hall, Trans. Albany Institute, X, p. 193 (abstract, 1881, p. 193).

1884. Semiopora. Hall, Rep. State Geologist New York for the year 1883, p. 51.

1887. Semiopora. Hall and Simpson, Pal. New York, VI, p. xxii.

1889. Semiopora. Miller, North American Geol. Pal., p. 322.

1897. Semiopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 535.

Semiopora bistigmata Hall.

1883. Semiopora bistigmata. Hall, Trans. Albany Institute, X, p. 193 (abstract, 1881, p. 193).

1884. Semiopora bistigmata. Hall, Rep. State Geologist New York for the year 1883, p. 51.

1887. Semiopora bistigmata. Hall and Simpson, Pal. New York, VI, p. 262, pl. xlii, 27–29.

1891. Semiopora bistigmata. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 52; Forty-fourth Ann. Rep. New York State Mus., p. 82.

1897. Semiopora bistigmata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xi, 10, 11.

1898. Semiopora bistigmata. Whiteaves, Contr. Canadian Pal., I, Part V, p. 377.

Hamilton: West Williams, Ontario.

SEPTOPORA Prout. Genotype: Septopora Cestriensis Prout.

1859. Septopora. Prout, Trans. St. Louis Acad. Sci., I, p. 448.

1882. Septopora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 150.

1885. Septopora. Waagen and Pichl., Pal. Indica, Ser. XIII, p. 773.

1886. Septopora. Ulrich, Contr. American Pal., I, p. 6.

1887. Septopora. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 79.

1889. Septopora. Miller, North American Geol. Pal., p. 322.

1890. Septopora. Ulrich, Geol. Surv. Illinois, VIII, pp. 397, 626.

1895. Septopora. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 721, 726; Forty-seventh Ann. Rep. New York State Mus., pp. 915, 920.

1895. Septopora. Whidborne, Devon. Fauna England (Pal. Soc. Publ.), II, part 4, p. 183.

1896. Septopora. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 283.

1897. Septopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 514, 521.

Septopora biserialis (Swallow).

1858. Synocladia virgulacea Phillips (?). Swallow, Trans. St. Louis Acad. Sci., I, p. 179.
1858. Synocladia biserialis. Swallow, Trans. St. Louis Acad. Sci., I, p. 179.
1860. Synocladia biserialis. Meek and Hayden, Proc. Acad. Nat. Sci. Philadelphia, p. 24.
1866. Synocladia virgulacea (not of Phillips). Geinitz, Carb. und Dyas in Nebraska, p. 70, pl. v, 14.
1870. Synocladia virgulacea var. biserialis. Meek and Worthen, Geol. Surv. Illinois, V, pl. xxiv, 15*a–c*.
1872. Synocladia biserialis. Meek, Pal. Eastern Nebraska, p. 156, pl. vii, 5*a–e*.
1874. Synocladia biserialis. Meek, American Jour. Sci. Arts., ser. 3, VII, p. 486.
1877. Synocladia biserialis. White, Wheeler's United States Geol. Surv., IV, p. 107, pl. vii, 3*a–c*.
1884. Synocladia biserialis. White, Thirteenth Ann. Rep. Indiana Geol. Nat. Hist., Part 2, p. 138, pl. xxv, 11–13.
1887. Septopora biserialis. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 87; ibid., III, 1888, pl. vii, 16*a–c*.
1888. Synocladia biserialis. Keyes, Proc. Acad. Nat. Sci. Philadelphia, p. 225.
1890. Septopora biserialis. Ulrich, Geol. Surv. Illinois, VIII, p. 631, pl. lvi, 11.
1894. Septopora biserialis. Keyes, Missouri Geol. Surv., V, p. 32, pl. xxxiv, 1*a–d*.
1896. Septopora biserialis. Smith, Proc. American Phil. Soc., XXXV, p. 237.

Coal Measures: Various localities in Kansas, Nebraska, Missouri, Indian Territory, Iowa, Illinois, Ohio, and Kentucky.

Septopora biserialis-gracilis (Meek).

1875. Synocladia biserialis var. gracilis. Meek, Pal. Ohio, II, p. 326, pl. xx, 5–5*b*.
1887. Septopora biserialis var. gracilis. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 80; ibid., III, 1888, pl. vii, 7*a–c*.

Coal Measures: Flint Ridge, Ohio.

Septopora biserialis-nervata Ulrich.

1890. Septopora biserialis var. nervata. Ulrich, Geol. Surv. Illinois, VIII, p. 632, pl. lxiv, 6.

Chester: Kentucky.

Coal Measures: Illinois and near Red Oak, Iowa.

Septopora cestriensis Meek and Worthen (not Prout). See Septopora subquadrans Ulrich.

Septopora cestriensis Prout.

1859. Septopora Cestriensis. Prout, Trans. St. Louis Acad. Sci., I, p. 448, pl. xviii, 2–2*b*.
1890. Septopora cestriensis. Ulrich, Geol. Surv. Illinois, VIII, p. 628, pl. lxiv, 1–1*b*.
1894. Septopora cestriensis. Keyes, Missouri Geol. Surv., V, p. 32.
1897. Septopora cestriensis. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 65 (p. 515).

Chester: Chester, Illinois; Sloans Valley and several localities in western Kentucky.

Septopora decipiens Ulrich.

1890. Septopora decipiens. Ulrich, Geol. Sur. Illinois, VIII, p. 630, pl. lxvi, 9.

Chester: Sloans Valley, Kentucky.

Septopora delicatula Ulrich.

1890. Septopora delicatula. Ulrich, Geol. Surv. Illinois, VIII, p. 634, pl. lxiv, 5, 5*a*.

Lower Coal Measures: Seville, Illinois.

Septopora pinnata Ulrich.

1890. Septopora pinnata. Ulrich, Geol. Surv. Illinois, VIII, p. 633, pl. lxiv, 7, pl. lxv, 1, 1*a*.

Upper Coal Measures: Jasper County, Illinois.

Septopora rectistyla (Whitfield).

1882. Synocladia rectistyla. Whitfield, Annals New York Acad. Sci., II, p. 220.

1891. Septopora rectistyla. Whitfield, Annals New York Acad. Sci., V, p. 579, pl. xiii, 9, 10.

1895. Synocladia rectistyla. Whitfield, Geol. Sur. Ohio, VII, p. 467, pl. ix, 9, 10.

Chester: Newtonville, Ohio.

Septopora robusta Ulrich.

1890. Septopora robusta. Ulrich, Geol. Sur. Illinois, VIII, p. 633, pl. lvi, 9–9*c*, pl. lxiv, 3, 3*a*.

Upper Coal Measures: Fayette County, Illinois.

Septopora robusta-intermedia Ulrich.

1890. Septopora robusta var. intermedia. Ulrich, Geol. Sur. Illinois, VIII, p. 634, pl. lvi, 10, pl. lxiv, 4, 4*a*.

Chester: Litchfield and Sloans Valley, Kentucky.

Septopora subquadrans Ulrich.

1870. Septopora cestriensis (not of Prout). Meek and Worthen, Proc. Acad. Nat. Sci. Philadelphia, p. 15.

1870. Septopora cestriensis (not of Prout). Meek and Worthen, Geol. Sur. Illinois, V, pl. xxiv, 14 *a–c*.

1874. Septopora cestriensis (not of Prout). Meek, American Jour. Sci. Arts, ser. 3, VII, p. 486.

1890. Septopora subquadrans. Ulrich, Geol. Sur. Illinois, VIII, p. 629, pl. lvi, 7, 8, pl. lxiv, 2–2*b*.

Chester: Chester, Illinois; Sloans Valley, and other localities in Kentucky.

SPATIOPORA Ulrich. Genotype: Spatiopora aspera Ulrich.

1882. Spatiopora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 155; ibid, VI, 1883, p. 166.

1883. Spatiopora. Foord, Contr. Micro-Pal. Cambro-Sil., p. 20.

1889. Spatiopora. Miller, North American Geol. Pal., p. 323.

1890. Spatiopora. Ulrich, Geol. Sur. Illinois, VIII, p. 381.

1893. Spatiopora. Ulrich, Geol. Minnesota, III, p. 319.

1896. Spatiopora. Ulrich, Zittel's Textb. Pal. (Eng. ed.), p. 269.

Spatiopora ? areolata Foord.

1883. Spatiopora areolata. Foord, Contr. Micro-Pal. Cambro-Sil., p. 21, pl. v, 1–1*i*.

Trenton: Hull, Quebec.

Spatiopora aspera Ulrich.

1883. Spatiopora aspera. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 166, pl. vii, 5–5*b*.

1895. Monticulipora aspera. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVIII, p. 82.

1896. Spatiopora aspera. Ulrich, Zittel's Textb. Pal. (Eng. ed.), fig. 441 (p. 269).

Cincinnati (Lorraine): Hamilton and Cincinnati, Ohio.

Spatiopora corticans (Nicholson).

1874. Chætetes corticans. Nicholson, Quar. Jour. Geol. Soc. London, XXX, p. 512, pl. xix, 13, 14.

1875. Chætetes corticans. Nicholson, Pal. Ohio, II, p. 210, pl. xxii, 6, *6a*.

1876. Chætetes tuberculatus (not of Milne-Edwards and Haime). Nicholson, Ann. Mag. Nat. Hist., ser. 4, XVIII, p. 91.

1881. Monticulipora (Monotrypa) tuberculata (not of Milne-Edwards and Haime). Nicholson, Genus Monticulipora, p. 200, pl. iv, 2–*2d*.

Cincinnati (Lorraine and Richmond): Cincinnati, Warren, and Clinton counties, Ohio; Richmond and Versailles, Indiana.

Obs. This species has been considered synonymous with Spatiopora tuberculata (Milne-Edwards and Haime), but investigations show that it can be distinguished by several important and reliable characters.

Spatiopora iowensis Ulrich.

1893. Spatiopora iowensis. Ulrich, Geol. Minnesota, III, p. 321.

Cincinnati (Utica): Graf and Lantnerville, Iowa.

Spatiopora labeculosa Ulrich.

1893. Spatiopora labeculosa. Ulrich, Geol. Minnesota, III, p. 320, pl. xxviii, 1, 2.

Trenton (Black River): Minneapolis, St. Paul, and Fountain, Minnesota.

Spatiopora lineata Ulrich.

1883. Spatiopora lineata. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 167, pl. vii, 7.

Cincinnati (Lorraine): Hamilton and Cincinnati, Ohio.

Spatiopora lineata-incepta Ulrich.

1893. Spatiopora maculosa var. incepta. Ulrich, Geol. Minnesota, III, p. 320.

Trenton (Black River): Chatfield, Minnesota.

Spatiopora maculosa Ulrich.

1883. Spatiopora maculosa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 167, pl. vii, 6.

Cincinnati (Lorraine): Cincinnati, Ohio, and vicinity.

Spatiopora maculosa var. incepta Ulrich. See Spatiopora lineata-incepta Ulrich.

Spatiopora montifera Ulrich.

1883. Spatiopora montifera. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 168, pl. vi, 1, *1a*, pl. vii, 8.

Cincinnati (Richmond): Waynesville, Clarksville, and Oxford, Ohio.

Spatiopora tuberculata (Milne-Edwards and Haime).

1851. Chætetes tuberculatus. Milne-Edwards and Haime, Pol. Foss. Terr. Pal., p. 268, pl. xix, 3, *3a*.

1883. Monticulipora tuberculata. Hall, Twelfth Ann. Rep. Indiana Geol. Nat. Hist., p. 251, pl. x, 6.

1883. Spatiopora tuberculata. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 166.

1888. Monticulipora tuberculata. James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 21.

1895. Monticulipora tuberculata. J. F. James, Jour. Cincinnati Soc. Nat. Hist., XVI, p. 78.

Cincinnati (Lorraine and Richmond): Cincinnati, Waynesville, and other localities in Ohio.

SPHRAGIOPORA Ulrich. Genotype: Sphragiopora parasitica Ulrich.

1890. Sphragiopora. Ulrich, Geol. Surv. Illinois, VIII, pp. 398, 638.
1889. Sphragiopora. (Ulrich, in press), Miller, North American Geol. Pal., p. 323.
1897. Sphragiopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 594.

Sphragiopora parasitica Ulrich.

1890. Sphragiopora parasitica. Ulrich, Geol. Sur. Illinois, VIII, p. 638, pl. lxv, 6, 6*a*.
1894. Sphragiopora parasitica. Keyes, Missouri Geol. Sur., V, p. 33.
1897. Sphragiopora parasitica. Simpson, Fourteenth Ann. Rep. State Geologist New York, for the year 1894, fig. 196 (p. 594).
Chester: Chester, Illinois.

Stellipora Milne-Edwards and Dybowski (not Hall). See Constellaria Dana.

STELLIPORA Hall. Genotype: Stellipora antheloidea Hall.

1847. Stellipora. Hall, Pal. New York, I, p. 79.
1850. Stellipora. D'Orbigny, Prodr. de Pal., I, p. 22.
1877. Stellipora (in part). Dybowski, Die Chætetiden d. Ostbaltischen Silur-Form., p. 42.
1882. Stellipora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 155; ibid., VI, 1883, p. 263.
1889. Stellipora (in part). Miller, North American Geol. Pal., p. 203.
1890. Stellipora. Ulrich, Geol. Surv. Illinois, VIII, p. 374.
1896. Stellipora. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 276.

Stellipora antheloidea Hall.

1847. Stellipora antheloidea. Hall, Pal. New York, I, p. 79, pl. xxvi, 10*a–c*.
1883. Stellipora antheloidea. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 263, pl. xiv, 1, 1*a*.
1888. Monticulipora (Constellaria) antheloidea (in part). James and James, Jour. Cincinnati Soc. Nat. Hist., XI, p. 31.
Trenton: Lowville, New York; Ottawa, Canada.

Stellipora antheloidea D'Orbigny (not Hall). See Constellaria constellata (Van Cleve) Dana.

Stellipora (Constellaria) antheloidea Rominger. See Constellaria constellata (Van Cleve) Dana.

Stellipora limitaris Ulrich. See Constellaria limitaris (Ulrich).

STENOPORA Lonsdale. Genotype: Stenopora tasmaniensis Lonsdale.

1844. Stenopora. Lonsdale, Darwin's Volcanic Islands, Appendix, p. 161.
1845. Stenopora. Lonsdale, Strzelecki's Physical Description New South Wales, p. 262.
1845. Stenopora. Lonsdale, Geol. Russia and Ural Mountains, I, p. 631.
1850. Stenopora. King, Monograph Perm. Foss. England, p. 28.
1852. Stenopora. McCoy, Brit. Pal. Foss., p. 24.
1860. Stenopora. Eichwald, Lethæa Rossica, I, p. 414.
1874. Stenopora. Miller, Cincinnati Quar. Jour. Sci., I, p. 368.
1876. Stenopora. Dybowski, Verh. d. k. Min. Ges. St. Petersburg, ser. 2, X, p. 180.
1879. Stenopora. Nicholson and Etheridge, Jun., Ann. Mag. Nat. Hist., ser. 5, IV, p. 265.
1879. Stenopora. Nicholson, Pal. Tabulate Corals, p. 168.
1882. Stenopora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 154.

STENOPORA Lonsdale—Continued.

1886. Stenopora. Nicholson and Etheridge, Jun., Ann. Mag. Nat. Hist., ser. 5, XVII, pp. 173–187.
1886. Stenopora. Waagen and Wentzel, Pal. Indica, Ser. XIII, pp. 875, 885.
1887. Stenopora. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 85.
1889. Stenopora. Miller, North American Geol. Pal., p. 203.
1890. Stenopora. Ulrich, Geol. Surv. Illinois, VIII, pp. 375, 436.
1896. Stenopora. Zittel's Textb. Pal. (Engl. Ed.), p. 105.
1896. Stenopora. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 277.
1897. Stenopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 583.
1883. Tabulipora. Young, Ann. Mag. Nat. Hist., ser. 5, XII, p. 154.
1844. Tubuliclidia. Lonsdale, Bull. Soc. Geol. France, ser. 2, I, p. 497.
1845. Tubuliclidia. Lonsdale, Murchison's Geol. Russia, pp. 221, 631.

Stenopora adherens Billings. Not recognizable.

1859. Stenopora adherens. Billings, Canadian Nat. Geol., IV, p. 427.
Chazy: Mingan Islands, Canada.

Stenopora americana Ulrich.

1890. Stenopora americana. Ulrich, Geol. Surv. Illinois, VIII, p. 437, pl. lxxiv, 1, 1*a*, fig. 4*b* (p. 309).
1894. Stenopora americana. Keyes, Missouri Geol. Surv., V, p. 14.
1896. Stenopora americana. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 464, (p. 277).
Keokuk: Warsaw, and Jersey County, Illinois.

Stenopora americana-varsoviensis Ulrich.

1890. Stenopora americana var. varsoviensis. Ulrich, Geol. Surv. Illinois, VIII, p. 437, pl. lxxiv, 3, 3*a*.
Warsaw: Warsaw, Illinois.

Stenopora angularis Ulrich.

1890. Stenopora angularis. Ulrich, Geol. Surv. Illinois, VIII, p. 439, pl. lxxiv, 6–6*b*.
1894. Stenopora angularis. Keyes, Missouri Geol. Surv., V, p. 15.
Keokuk: Lagrange, Missouri.

Stenopora bulbosa Billings. Not recognizable.

1865. Stenopora bulbosa. Billings, Canadian Nat. Geol., ser. 2, II, p. 429.
1866. Stenopora bulbosa. Billings, Catal. Sil. Foss. Anticosti, p. 32.
Anticosti: Anticosti Island.

Stenopora carbonaria (Worthen).

1875. Chætetes ? carbonaria. Worthen, Geol. Surv. Illinois, VI, p. 526, pl. xxxii, 5.
1887. Stenopora carbonaria. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 85; ibid., III, 1888, pl. viii, 13*a–c*.
1890. Stenopora carbonaria. Ulrich, Geol. Surv. Illinois, VIII, p. 445, pl. lxxiii, 8, 8*a*.
Coal Measures: Caseyville and Peoria, Illinois; Lawrence, Kansas; Licking County, Ohio.

Stenopora carbonaria-conferta Ulrich.

1890. Stenopora carbonaria var. conferta. Ulrich, Geol. Surv. Illinois, VIII, p. 446, pl. lxxiii, 9, 9*a*.
Coal Measures: Caseyville, Illinois.

Stenopora carbonaria-maculosa Ulrich.

1890. Stenopora carbonaria var. maculosa. Ulrich, Geol. Surv. Illinois, VIII, p. 445, pl. lxxiii, 10, 10*a*.

Coal Measures: Caseyville, Illinois.

Stenopora cestriensis Ulrich.

1890. Stenopora cestriensis. Ulrich, Geol. Surv. Illinois, VIII, p. 442, pl. lxxiv, 7, 7*a*.

1894. Stenopora cestriensis. Keyes, Missouri Geol. Surv., V, p. 16.

Chester: Chester, Illinois; Smithland, Sloans Valley, and Caldwell County, Kentucky.

Stenopora emaciata Ulrich.

1890. Stenopora emaciata. Ulrich, Geol. Surv. Illinois, VIII, p. 438, pl. lxxiv, 2, 2*a*.

1894. Stenopora emaciata. Keyes, Missouri Geol. Surv., V, p. 15.

Keokuk: Warsaw, Illinois; Keokuk, Iowa.

Stenopora exilis Dawson. See Rhombopora exilis (Dawson).

Stenopora fibrosa Billings (not Goldfuss?).

1863. Stenopora fibrosa. Billings, Geol. Canada, p. 156, fig. 116.

1866. Stenopora fibrosa. Billings, Catal. Sil. Foss. Anticosti, p. 32.

Trenton: Canada.

Obs. A. H. Foord (Contr. Micro-Pal. Cambro-Sil., p. 15) says this is probably Monotrypella (now Eridotrypa) trentonensis (Nicholson).

Stenopora huronensis Billings. Not a bryozoan.

1865. Stenopora huronensis. Billings, Pal. Foss., I, p. 185.

Obs. This is a species of Tetradium according to A. H. Foord.

Stenopora intercalaris Ulrich.

1890. Stenopora intercalaris. Ulrich, Geol. Surv. Illinois, VIII, p. 439, pl. lxxiv, 5, 5*a*.

1894. Stenopora intercalaris. Keyes, Missouri Geol. Surv., V, p. 15.

1897. Stenopora intercalaris. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 160, 161 (p. 584).

Keokuk: Warsaw, Illinois.

Stenopora intermittens Ulrich.

1890. Stenopora intermittens. Ulrich, Geol. Surv. Illinois, VIII, p. 440, fig. 16.

1894. Stenopora intermittens. Keyes, Missouri Geol. Surv., V, p. 15.

Keokuk: Warsaw, Illinois.

Stenopora libana Safford. Not recognized.

1869. Stenopora libana. Safford, Geol. Tennessee, p. 285.

Stenopora meekana Ulrich.

1890. Stenopora meekana. Ulrich, Geol. Surv. Illinois, VIII, p. 443, pl. lxxiii, 7, 7*a*.

1894. Stenopora meekana. Keyes, Missouri Geol. Surv., V, p. 16.

Chester: Chester, Illinois; Sloans Valley, Kentucky.

Stenopora montifera Ulrich.

1890. Stenopora montifera. Ulrich, Geol. Surv. Illinois., VIII, p. 438, pl. lxxiv, 4–4*b*.

1894. Stenopora montifera. Keyes, Missouri Geol. Surv., V, p. 14.

Keokuk: Otter Creek, Jersey County, Illinois; Bentonsport, Iowa.

Stenopora ohioensis Foerste.

1887. Stenopora ohioensis. Foerste, Bull. Sci. Lab. Denison Univ., II, p. 85; ibid., III, 1888, pl. viii, 12*a*–*e*.
Coal Measures: Flint Ridge, Ohio.

Stenopora patula Billings. Not recognizable.

1859. Stenopora patula. Billings, Canadian Nat. Geol., IV, p. 427
Chazy: Island of Montreal and Mingan Islands, Canada.

Stenopora ramosa Ulrich.

1890. Stenopora ramosa. Ulrich, Geol. Surv. Illinois., VIII, p. 442, pl. lxxiii, 6–6*c*.
Chester: Sloans Valley and Grayson Springs, Kentucky; Chester, Illinois.

Stenopora rudis Ulrich.

1890. Stenopora rudis. Ulrich, Geol. Surv. Illinois, VIII, p. 444, pl. lxxii, 8–8*b*.
Chester: Sloans Valley, Kentucky.

Stenopora ? signata Ulrich.

1890. Stenopora ? signata. Ulrich, Geol. Surv. Illinois, VIII, p. 446, pl. lxxiii, 5–5*b*.
Coal Measures: Caseyville, Illinois.

Stenopora tuberculata (Prout).

1859. Flustra tuberculata. Prout, Trans. St. Louis Acad. Sci., I, p. 447, pl. xvii, 3–3*f*.
1890. Stenopora tuberculata. Ulrich, Geol. Surv. Illinois, VIII, p. 441, fig. 17, fig. 5*c* (p. 315).
1894. Stenopora tuberculata. Keyes, Missouri Geol. Surv., V, p. 15.
1860. Cyclopora polymorpha. Prout, Trans. St. Louis Acad. Sci., I, p. 578.
1866. Cyclopora polymorpha. Prout, Geol. Surv. Illinois, II, p. 421, pl. xxi, 5–5*b*.
Warsaw: Barretts Station, Missouri (Prout), and elsewhere.
St. Louis: Several localities.
Chester: Pope County (Prout) and Chester, Illinois; Grayson Springs and Sloans Valley, Kentucky, and many other localities.

Stictocella Simpson. See Cystodictya Ulrich.

Stictocella interstriata Simpson. See Stictopora ?? interstriata Hall.

Stictocella sinuosa Simpson. See Cystodictya sinuosa (Hall).

STICTOPORA Hall. Genotype: Stictopora elegantula Hall.

1847. Stictopora. Hall, Pal. New York, I, p. 73.
1879. Stictopora (in part). Hall, Twenty-eighth Ann. Rep. New York State Mus., p. 122.
1882. Stictopora (in part). Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 247.
1889. Stictopora (in part). Miller, North American Geol. Pal., p. 323.
1897. Stictopora (in part). Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 605.
Not Stictopora. Eichwald, Lethæa Rossica, I, p. 390.
Not Stictopora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, 1882, pp. 152, 168 (=Rhinidictya).
Not Stictopora. Hall and Simpson, Pal. New York, VI, 1887, p. xx (=Cystodictya).
Not Stictopora. Ulrich, Geol. Surv. Illinois, VIII, 1890, p. 388 (=Rhinidictya).

STICTOPORA Hall—Continued.

1897. Not Stictopora. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, 1899, p. 172 (=Cystodictya).

Obs. This name has been applied to a number of unrelated forms. A description and figures of the internal structure of the genotype have never been published. Thin sections of S. elegantula show that the genus is related to both Stictoporella and Tæniodictya. It resembles the former in the long primitive portion of the zooecial tubes, but is distinguished by the well-marked peristomes and absence of mesopores. From the latter it differs in the absence of hemisepta, the presence of peristomes, and the long primitive portion of the zooecial tubes.

Stictopora? acuta Hall. See Pachydictya acuta (Hall).

Stictopora acuta Ulrich. See Pachydictya acuta (Hall).

Stictopora alternata Hall and Simpson. Not recognizable.

1887. Stictopora alternata. Hall and Simpson, Pal. New York, VI, pl. xxiii A, 21. (Not described.)

Lower Helderberg: Clarksville, New York.

Stictopora angularis Hall. See Cystodictya tumulosa (Hall).

Stictopora basalis Ulrich. See Rhinidictya basalis (Ulrich).

Stictopora bifurcata Hall. See Cystodictya bifurcata (Hall).

Stictopora bifurcata (Van Cleve) Hall. See Pachydictya bifurcata (Hall).

Stictopora bristolensis Miller. See Cystodictya bifurcata (Hall).

Obs. The name bristolensis was proposed by S. A. Miller (North American Geol. Pal., p. 323) for Stictopora bifurcata Hall, which he considered preoccupied.

Stictopora clathratula James. See Escharopora pavonia (D'Orbigny).

Stictopora (Stictoporina) claviformis Hall and Simpson. See Stictoporina claviformis (Hall).

Stictopora compressa (Van Cleve) Hall. See Phænopora magna Hall and Whitfield.

Stictopora crassa Hall. See Pachydictya crassa (Hall).

Stictopora crenulata Hall. See Cystodictya subrigida (Hall).

Stictopora crescens Hall. See Cystodictya crescens (Hall).

Stictopora crispata Quenstedt. See Cystodictya gilberti (Meek).

Stictopora dichotoma Hall. See Tæniopora subcarinata (Hall).

Stictopora ?? divergens Hall and Simpson.

1887. Stictopora divergens. Hall and Simpson, Pal. New York, VI, p. 257, pl. lxiii, 18, 19.

1891. Stictopora divergens. Hall. Tenth Ann. Rep. State Geologist New York for the year 1890, p. 49; Forty-fourth Ann. Rep. New York State Mus., p. 79.

Hamilton: Darien Center, New York.

Stictopora elegantula Hall.

1847. Stictopora elegantula. Hall, Pal. New York, I, p. 75, pl. xxvi, 4*a–g*.

Trenton: Middleville, Trenton Falls, and other localities in New York.

Obs. See remarks under Stictopora.

Stictopora fenestrata Hall. See Rhinidictya fenestrata (Hall).

Stictopora fidelis Ulrich. See Rhinidictya fidelis (Ulrich).

Stictopora fidelis Ulrich, 1886 (in part). See Rhinidictya trentonensis (Ulrich).

Stictopora fragilis Whitfield. See Dicranopora fragilis (Billings).

Stictopora ?? fruticosa Hall.

1883. Stictopora fruticosa. Hall, Trans. Albany Institute, X, p. 56 (abstract, 1881, p. 14).

1883. Stictopora fruticosa. Hall, Rep. State Geologist New York for the year 1882, pl. xxv, 12–14.

1887. Stictopora fruticosa. Hall and Simpson, Pal. New York, VI, p. 92, pl. xxviii, 12–14.

Upper Helderberg: New York.

Stictopora Gilberti Hall. See Cystodictya gilberti (Meek).

Stictopora ? glomerata Hall.

1847. Stictopora glomerata. Hall, Pal. New York, I, p. 17, pl. iv, 5.

Chazy: Granville, Vermont.

Stictopora graminifolia Ringueberg. Recognizable ?

1884. Stictopora graminifolia. Ringueberg, Proc. Acad. Nat. Sci. Philadelphia, p. 147, pl. iii, 4.

Niagara (Transitional): Gasport, New York.

Stictopora ?? granatula Hall.

1883. Trematopora rhombifera (in part). Hall, Rep. State Geologist New York for the year 1882, pl. xi, 16.

1887. Stictopora granatula. Hall and Simpson, Pal. New York, VI, p. 38, pl. xi, 16; pl. xxiii A, 17.

Lower Helderberg: Catskill Creek and Clarksville, New York.

Stictopora ?? granifera Hall.

1883. Stictopora granifera. Hall. Trans. Albany Institute, X, p. 191 (abstract, 1881, p. 191).

1884. Stictopora granifera. Hall, Rep. State Geologist New York for the year 1883, p. 45.

1887. Stictopora granifera. Hall and Simpson, Pal. New York, VI, p. 257, pl. lxi, 1–6.

1891. Stictopora granifera. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 49; Forty-fourth Ann. Rep. New York State Mus., p. 79.

Hamilton: Pavilion and Muttonville, New York.

Stictopora incisurata Hall. See Cystodictya incisurata (Hall).

Stictopora ?? incrassata Hall.

1883. Stictopora incrassata. Hall, Trans. Albany Institute, X, p. 190 (abstract, 1881, p. 190).

1884. Stictopora incrassata. Hall, Rep. State Geologist New York for the year 1883, p. 47.

1887. Stictopora incrassata. Hall and Simpson, Pal. New York, VI, p. 249, pl. lxii, 1–6.

1891. Stictopora incrassata. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 43; Forty-fourth Ann. Rep. New York State Mus., p. 73.

1898. Cystodictya ? incrassata. Whiteaves, Contr. Canadian Pal., I, p. 377.

Hamilton: West Williams, Ontario.

Stictopora indenta Hall. See Cystodictya incisurata (Hall).

Stictopora ? ? interstriata Hall.

1883. Stictopora interstriata. Hall, Trans. Albany Institute, X, p. 191 (abstract, 1881, p. 191).

1884. Stictopora interstriata. Hall, Rep. State Geologist New York for the year 1883, p. 45.

1887. Stictopora interstriata. Hall and Simpson, Pal. New York, VI, p. 259, pl. lxii, 7–12.

1891. Stictopora interstriata. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 51; Forty-fourth Ann. Rep. New York State Mus., p. 81.

1897. Stictocella interstriata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. x, 6, 7. [Note: Figure 6 is given in Pal. New York, VI, pl. lxi, 2, as Stictopora granifera.]

Hamilton: Fallbrook, New York.

Stictopora invertis Hall. See Cystodictya ? invertis (Hall).

Stictopora ? labyrinthica Hall.

1847. Stictopora labyrinthica. Hall, Pal. New York, I, p. 50, pl. xii, 8*a*, *b*, and woodcut on p. 50.

Trenton (Stones River): Chazy and Watertown, New York.

Obs. This form may prove to be a Phyllodictya.

Stictopora limata Hall. See Cystodictya limata (Hall).

Stictopora linearis Hall. See Cystodictya linearis (Hall).

Stictopora lobata Hall. See Euspilopora lobata (Hall).

Stictopora magna Hall and Whitfield. See Phænopora magna (Hall and Whitfield).

Stictopora multifida (Van Cleve) Hall. See Phænopora multifida (Hall).

Stictopora multipora Hall. See Cystodictya incisurata (Hall).

Stictopora mutabilis Ulrich. See Rhinidictya mutabilis (Ulrich).

Stictopora mutabilis var. major Ulrich. See Rhinidictya mutabilis-major (Ulrich).

Stictopora mutabilis var. minor Ulrich. See Rhinidictya mutabilis (Ulrich).

Stictopora obliqua Hall. See Cystodictya incisurata (Hall).

Stictopora obliqua Ringueberg. See Ptilodictya obliqua (Ringueberg).

Stictopora ?? obsoleta Hall and Simpson.

1887. Stictopora obsoleta. Hall and Simpson, Pal. New York, VI, p. 37, pl. xxiiiA, 22.

Lower Helderberg: Clarksville, New York.

Obs. Probably a synonym for Stictopora ?? papillosa Hall.

Stictopora orbipora Hall. See Stictotrypa orbipora (Hall.)

Stictopora ovata Hall. See Cystodictya ovata (Hall).

Stictopora ovatipora Hall. See Cystodictya ? ovatipora (Hall).

Stictopora ovatipora Miller (not Hall). See Stictotrypa similis (Hall).

Stictopora palmipes Hall. See Euspilopora palmipes (Hall).

Stictopora ?? papillosa Hall.

1879. Stictopora papillosa. Hall, Thirty-second Ann. Rep. New York State Mus., p. 161 (reprint, 1880, p. 23).

1883. Stictopora papillosa. Hall, Rep. State Geologist New York for the year 1882, pl. xiii, 12, 13.

Stictopora ?? papillosa Hall—Continued.

1887. Stictopora papillosa. Hall and Simpson, Pal. New York, VI, p. 37, pl. xiii, 12, 13, pl. xxiiiA, 16.

Lower Helderberg: Clarksville, New York.

Stictopora paupera Ulrich. See Rhinidictya paupera (Ulrich) and Rhinidictya neglecta (Ulrich).

Stictopora perarcta Hall. See Cystodictya perarcta (Hall).

Stictopora ?? permarginata Hall.

1883. Stictopora permarginata. Hall, Trans. Albany Institute, X, p. 191 (abstract, 1881, p. 191).

1884. Stictopora permarginata. Hall, Rep. State Geologist New York for the year 1883, p. 46.

1887. Stictopora permarginata. Hall and Simpson, Pal. New York, VI, p. 258, pl. lxiii, 16.

1891. Stictopora permarginata. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 50; Forty-fourth Ann. Rep. New York State Mus., p. 80.

1899. Stictopora permarginata. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 174, fig. 70.

Hamilton: Hamburg, New York.

Stictopora punctipora Hall. See Stictotrypa punctipora (Hall).

Stictopora ? ramosa Hall.

1847. Stictopora ramosa. Hall, Pal. New York, I, p. 51, pl. xii, 6, 7, 7*a*, and woodcut on p. 51.

Trenton (Stones River): ? Watertown, New York.

Stictopora raripora Hall. See Nematopora raripora (Hall).

Stictopora recta Hall. See Cystodictya ? recta Hall.

Stictopora rectalinea Hall. See Cystodictya rectilinea (Hall.)

Stictopora rectilatera Hall. See Cystodictya linearis (Hall).

Stictopora recubans Hall and Simpson. See Tæniopora recubans (Hall and Simpson).

Stictopora rhomboidea Hall. See Tæniodictya ? rhomboidea (Hall).

Stictopora rigida Hall. See Cystodictya rigida (Hall).

Stictopora scitula Hall and Simpson. See Pachydictya crassa (Hall).

Stictopora ? scutulata Hall. See Stictoporina scutulata (Hall).

Stictopora semistriata Hall. See Cystodictya semistriata (Hall).

Stictopora similis Hall. See Stictotrypa similis (Hall).

Stictopora sinuosa Hall. See Cystodictya sinuosa (Hall).

Stictopora ?? striata Hall and Simpson.

1887. Stictopora striata. Hall and Simpson, Pal. New York, VI, p. 246, pl. lxiii, 22.

1888. Stictopora striata. Herrick, Bull. Sci. Lab. Denison Univ., III, pl. xii, 40, 40*a*.

1891. Stictopora striata. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 42; Forty-fourth Ann. Rep. New York State Mus., p. 72.

Hamilton: Ontario County, New York. A form from the Waverly at Moots Run, Ohio, has been identified by Herrick as this species, but the identification is certainly incorrect.

Stictopora ? subcarinata Hall. See Tæniopora subcarinata (Hall).

Stictopora subrigida Hall. See Cystodictya subrigida (Hall).

Stictopora sulcata Winchell. See Cystodictya sulcata (Winchell).

Stictopora trilineata Hall. See Cystodictya trilineata (Hall).

Stictopora ? triserialis Hall. See Acanthoclema triseriale (Hall).

Stictopora tumulosa Hall. See Cystodictya tumulosa (Hall).

Stictopora Vanclevii Hall. See Phænopora fimbriata (James).

Stictopora vermicula Hall. See Cystodictya vermicula (Hall).

STICTOPORELLA Ulrich. Genotype: Stictoporella interstincta Ulrich = Ptilodictya flexuosa James.

1882. Stictoporella. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, pp. 152, 169.
1889. Stictoporella. Miller, North American Geol. Pal., p. 325.
1890. Stictoporella. Ulrich, Geol. Sur. Illinois, VIII, p. 394.
1893. Stictoporella. Ulrich, Geol. Minnesota, III, p. 179.
1896. Stictoporella. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 279.
1897. Stictoporella. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 535.

Stictoporella angularis Ulrich.

1886. Stictoporella angularis. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 71.
1893. Stictoporella angularis. Ulrich, Geol. Minnesota, III, p. 182, pl. xi, 1–3, 6, 8–11.

Trenton (Stones River): Minneapolis, St. Paul, Goodhue, and Fillmore counties, Minnesota.

Stictoporella angularis-intermedia Ulrich.

1893. Stictoporella angularis var. intermedia. Ulrich, Geol. Minnesota, III, p. 183, pl. xi, 4, 5, 7.

Trenton (Stones River): Minneapolis, Fountain, Lanesboro, and Preston, Minnesota; Decorah, Iowa.

Stictoporella basalis Ulrich. See Intrapora basalis (Ulrich).

Stictoporella cribrosa Ulrich.

1886. Stictoporella ? cribrosa. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 69.
1893. Stictoporella cribrosa. Ulrich, Geol. Minnesota, III, p. 184, pl. x, 21–25, pl. xi, 22, 23.
1897. Stictoporella cribrosa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 93 (p. 536).

Trenton (Stones River and Black River): Minneapolis and St. Paul, Minnesota.

Stictoporella dumosa Ulrich.

1893. Stictoporella dumosa. Ulrich, Geol. Minnesota, III, p. 181.

Trenton (Black River): St. Paul, Minnesota.

Stictoporella ? excellens Ulrich. See Phænopora excellens (Billings).

Stictoporella exigua Ulrich.

1893. Stictoporella exigua. Ulrich, Geol. Minnesota, III, pl. xiii, 18–21.

Trenton: Montreal, Canada.

Stictoporella flabellata (Hall).

1851. Clathropora flabellata. Hall, Foster and Whitney's Rep. Geol. Lake Superior Land District, Part II, p. 207, pl. xxiv, 2*a*, *b*.

Trenton: Escanaba River, below Indian Creek, Upper Peninsula, Michigan.

Stictoporella flexuosa (James).

1878. Ptilodictya flexuosa. James, Paleontologist, No. 1, p. 4.
1882. Stictoporella flexuosa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 169.
1882. Stictoporella interstincta. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 169, pl. viii, 9, 9*a*.
1889. Stictoporella interstincta. Miller, North American Geol. Pal., figs. 520, 521 (p. 325).
1890. Stictoporella interstincta. Ulrich, Geol. Surv. Illinois, VIII, fig. 14*a*, *b* (p. 394).
Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

Stictoporella frondifera Ulrich.

1886. Stictoporella frondifera. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Surv. Minnesota, p. 72.
1893. Stictoporella frondifera. Ulrich, Geol. Minnesota, III, p. 183, pl. xi, 12–19.
Trenton (Stones River): Minneapolis, Minnesota.

Stictoporella interstincta Ulrich. See Stictoporella flexuosa (James).

Stictoporella rigida Ulrich.

1890. Stictoporella rigida. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 188, fig. 13.
1893. Stictoporella rigida. Ulrich, Geol. Minnesota, III, p. 180, pl. xi, 20, 21.
Trenton (Black River): Fountain, St. Paul, and Cannon Falls, Minnesota.

Stictoporella ? undulata Ulrich. See Intrapora undulata (Ulrich).

Stictoporidra Simpson. See Tæniopora Nicholson.

Stictoporina Simpson (in part). See Tæniopora Nicholson.

STICTOPORINA Hall and Simpson. Genotype: Trematopora claviformis Hall.

1887. Stictoporina. Hall and Simpson, Pal. New York, VI, p. xx.
1889. Stictoporina. Miller, North American Geol. Pal., p. 325.
1897. Stictoporina. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 543 (not p. 532, which is probably in error for Stictoporidra).

Stictoporina claviformis (Hall).

1883. Trematopora claviformis. Hall, Trans. Albany Institute, X, p. 181 (abstract 1881, p. 181).
1884. Trematopora claviformis. Hall, Rep. State Geologist New York for the year 1883, p. 12.
1887. Stictopora (Stictoporina) claviformis. Hall and Simpson, Pal. New York, VI, p. 269.
1897. Stictoporina claviformis. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. x, 1, 2.
Hamilton: Bellona, New York.

Stictoporina plumea (Hall and Simpson).

1887. Ptilodictya plumea. Hall and Simpson, Pal. New York, VI, p. 271, pl. lxi, 9–12.
1891. Ptilodictya plumea. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 55; Forty-fourth Ann. Rep. New York State Mus., p. 85.
1897. Ptilodictya plumea. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xv, 4–6.
1899. Ptilodictya plumea. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 176, fig. 73.

Stictoporina plumea (Hall and Simpson)—Continued.

1887. Ptilodictya retiformis. Hall and Simpson, Pal. New York, VI, p. 272, pl. lxi, 13.

1897. Ptilodictya retiformis. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xv, 7.

Hamilton: Hamburg, New York.

Obs. See also note under Stictoporina scutulata (Hall).

Stictoporina scutulata (Hall).

1883. Stictopora ? scutulata. Hall, Trans. Albany Institute, X, p. 191 (abstract, 1881, p. 191).

1884. Stictopora ? scutulata. Hall, Rep. State Geologist New York for the year 1883, p. 47.

1887. Ptilodictya scutulata. Hall and Simpson, Pal. New York, VI, p. 272.

Hamilton: Canandaigua Lake, New York.

Obs. Probably a synonym for Stictoporina plumea (Hall and Simpson).

Stictoporina subcarinata Simpson. See Tæniopora subcarinata (Hall).

STICTOTRYPA Ulrich. Genotype: Stictopora similis Hall.

1890. Stictotrypa. Ulrich, Geol. Surv. Illinois, VIII, p. 393.

1896. Stictotrypa. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 279.

Stictotrypa orbipora (Hall).

1883. Stictopora orbipora. Hall, Trans. Albany Institute, X, p. 61 (abstract, 1879, p. 5).

1882. Stictopora orbipora. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 248.

Niagara: Waldron, Indiana

Stictotrypa punctipora (Hall).

1852. Stictopora punctipora. Hall, Pal. New York, II, p. 157, pl. xl B, 2*a*–*c*.

1889. Stictopora punctipora. Miller, North American Geol. Pal., fig. 519 (p. 324).

1890. Stictotrypa punctipora. Ulrich, Geol. Surv. Illinois, VIII, fig. 13*a* (p. 394).

Niagara: Lockport, New York.

Stictotrypa similis (Hall).

1876. Stictopora similis. Hall, Twenty-eighth Ann. Rep. New York State Mus. (documentary edition), pl. xi, 13–16; ibid. (Museum edition, 1879), p. 122, pl. xi, 13–16.

1882. Stictopora similis. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 247, pl. x, 13–16.

1890. Stictotrypa similis. Ulrich, Geol. Surv. Illinois, VIII, fig. 13*b*, *c* (p. 394).

1889. Stictopora ovatipora (not of Hall). Miller, North American Geol. Pal., fig. 518 (p. 324).

Niagara: Waldron, Indiana.

Clinton: Belfast, Ohio (Foerste).

STOMATOPORA Bronn. Genotype: Alecto dichotoma Lamouroux.

Alecto, Lamouroux, 1821, Blainville, Johnston, Milne-Edwards, Busk, and others. (Not Alecto, Leach, 1814, a genus of Echinodermata.)

Aulopora (in part). Goldfuss, Reuss, Hall, Nicholson.

1825. Stomatopora. Bronn, Pflanzenth., p. 27.

1854. Stomatopora. D'Orbigny, Pal. Francais, Terr. Cret., V, p. 833.

1854. Stomatopora. Haime, Bry. Foss. Form. Juras., p. 159. [Extra ed., p. 3.]

1880. Stomatopora (in part). Hincks, British Marine Polyzoa, p. 424.

1882. Stomatopora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, p. 149.

1889. Stomatopora. Miller, North American Geol. Pal., p. 325.

STOMATOPORA Bronn—Continued.

1890. Stomatopora. Ulrich, Geol. Surv. Illinois, VIII, p. 367.
1893. Stomatopora. Ulrich, Geol. Minnesota, III, p. 115.
1896. Stomatopora. Ulrich, Zittel's Textb. Pal., (Eng. ed.), p. 260.
1897. Stomatopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 597.

Stomatopora ? alternata Hall and Whitfield. See Hederella alternata (Hall and Whitfield).

Stomatopora arachnoidea (Hall).

1847. Aulopora arachnoidea. Hall, Pal. New York, I, p. 76, pl. xxvi, 6*a–c*, and woodcut on p. 76.
1875. Aulopora arachnoidea. Nicholson, Pal. Ohio, II, p. 216, pl. xxiii, 1, 1*b*.
Trenton and Cincinnati (Utica, Lorraine, and Richmond): Various localities in New York, Ohio, Indiana, and Kentucky.

Stomatopora auloporoides Miller. See Proboscina auloporoides (Nicholson).

Stomatopora canadensis Whiteaves.

1897. Stomatopora Canadensis. Whiteaves, Pal. Foss., III, p. 161, pl. xviii, 4, 4*a*.
Trenton: Little Black Island, Lake Winnipeg, Canada.

Stomatopora confusa Miller. See Proboscina confusa (Nicholson).

Stomatopora delicatula (James).

1878. Hippothoa delicatula. James, Paleontologist, No. 1, p. 6.
1882. Stomatopora proutana. Miller, Jour. Cincinnati Soc. Nat. Hist., V, p. 39, pl. i, 4–4*b*.
1890. Stomatopora proutana. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, fig. 2*c* (p. 175).
1893. Stomatopora proutana. Ulrich, Geol. Minnesota, III, p. 117, pl. i, 8–12.
1886. Rhopalonaria pertenuis. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 59.
Trenton (Stones River, Black River, and Trenton) and Cincinnati (Utica, Lorraine, and Richmond): Various localities in Ohio, Indiana, Kentucky, Tennessee, Illinois, Iowa, and Minnesota.

Stomatopora delicatula-tenuissima Ulrich.

1890. Stomatopora tenuissima. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 175, fig. 2.
1893. Stomatopora tenuissima. Ulrich, Geol. Minnesota, III, p. 116, pl. i, 6, 7.
1896. Stomatopora tenuissima. Ulrich, Zittel's Textb. Pal. (Eng. ed.), fig. 412A (p. 261).
Cincinnati (Utica): Cincinnati, Ohio, and vicinity.

Stomatopora frondosa Miller. See Proboscina frondosa (Nicholson).

Stomatopora (Proboscina) frondosa Ulrich. See Proboscina frondosa (Nicholson).

Stomatopora inflata (Hall).

1847. Alecto inflata. Hall, Pal. New York, I, p. 77, pl. xxvi, 7*a*, *b*.
1875. Hippothoa inflata. Nicholson, Pal. Ohio, II, p. 268, pl. xxv, 1–1*b*.
1881. Stomatopora inflata. Vine, Quar. Jour. Geol. Soc. London, XXXVII, p. 615.
1890. Stomatopora inflata. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 176, fig. 3*c*.

Stomatopora inflata (Hall)—Continued.

1893. Stomatopora inflata. Ulrich, Geol. Minnesota, III, p. 117, pl. i, 13–21.
1896. Stomatopora inflata. Ulrich, Zittel's Textb. Pal. (Eng. ed.), fig. 412B (p. 261).
1897. Stomatopora inflata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 202–204 (p. 597).

Trenton and Cincinnati: At various localities in the Black River of Minnesota; in the Trenton of New York, Kentucky, Minnesota, and Canada; in the Lorraine of Ohio, and in the Richmond of Ohio, Indiana, Kentucky, and Illinois.

Stomatopora ?? moniliformis Whiteaves.

1891. Stomatopora moniliformis. Whiteaves, Contr. Canadian Pal., I, p. 212, pl. xxviii, 10.

Devonian (Hamilton ?): Hay River, Canada.

Stomatopora parva Ringueberg.

1886. Stomatopora parva. Ringueberg, Bull. Buffalo Soc. Nat. Hist., V, p. 20, pl. ii, 16.

Niagara: Lockport, New York.

Stomatopora proutana Miller. See Stomatopora delicatula (James).

Stomatopora recta Ringueberg.

1886. Stomatopora recta. Ringueberg, Bull. Buffalo Soc. Nat. Sci., V, p. 20, pl. ii, 15, 15*a*.

Niagara: Lockport, New York.

Stomatopora tenuissima Ulrich. See Stomatopora delicatula-tenuissima Ulrich.

Stomatopora turgida Ulrich.

1890. Stomatopora turgida. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 176, fig. 3.
1893. Stomatopora turgida. Ulrich, Geol. Minnesota, III, p. 118, pl. i, 22, 23.

Cincinnati (Richmond): Wilmington, Illinois.

STREBLOTRYPA Ulrich. Genotype: Streblotrypa nicklesi Ulrich.

1890. Streblotrypa. Ulrich, Geol. Surv. Illinois, VIII, pp. 403, 665.
1889. Streblotrypa. (Ulrich, in press), Miller, North American Geol. Pal., p. 325.
1897. Streblotrypa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 551.
1899. Streblotrypa. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 167.
1887. Acanthoclema (in part). Hall and Simpson, Pal. New York, VI, p. xv.

Streblotrypa amplexa Ulrich.

1888. Streblotrypa amplexa. Ulrich, Bull. Denison Univ., IV, p. 86, pl. xiv, 13.

Waverly: Sciotoville, Ohio.

Streblotrypa (? Lioclema) denticulata Ulrich.

1888. Streblotrypa (? Lioclema) denticulata. Ulrich, Bull. Denison Univ., IV, p. 88, pl. xiv, 18, 19.

Waverly: Richfield and Lodi, Ohio.

Streblotrypa distincta Ulrich.

1890. Streblotrypa distincta. Ulrich, Geol. Surv. Illinois, VIII, p. 669, pl. lxxi, 10–10*b*.
1894. Streblotrypa distincta. Keyes, Missouri Geol. Sur., V, p. 36.

Chester: Chester, Illinois.

Streblotrypa hamiltonensis (Nicholson).

1874. Ceriopora ? Hamiltonensis. Nicholson, Geol. Mag., new ser., I, p. 161, pl. ix, 17.
1874. Ceriopora ? Hamiltonensis. Nicholson, Pal. Ontario, p. 97, fig. 33.
1883. Callopora Hamiltonensis. Hall, Trans. Albany Institute, X, p. 182 (abstract, 1881, p. 182).
1887. Acanthoclema Hamiltonense. Hall and Simpson, Pal. New York, VI, p. 191, pl. lv, 18–26.
1889. Streblotrypa hamiltonensis. Miller, North American Geol. Pal., p. 326.
1889. Rhombopora Hamiltonensis. Nicholson and Lyddeker, Manual Paleontology, I, fig. 455 B (p. 610), fig. 478 (p. 632).
1890. Streblotrypa hamiltonensis. Ulrich, Geol. Surv. Illinois, VIII, p. 648.
1897. Streblotrypa Hamiltonense. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. xix, 14, 15.
1898. Streblotrypa Hamiltonensis. Whiteaves, Contr. Canadian Pal., I, Part V, p. 378.
1899. Streblotrypa hamiltonense. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 167, fig. 59.
1884. Callopora bipunctata. Hall, Rep. State Geologist New York for the year 1883, p. 15.
Hamilton: Arkona and Widder, Ontario; Hamburg and New Berlin, New York.

Streblotrypa hertzeri Ulrich.

1888. Streblotrypa hertzeri. Ulrich, Bull. Denison Univ., IV, p. 85, pl. xiv, 8.
Waverly: Richfield and Lodi, Ohio.
Keokuk: Keokuk, Iowa.

Streblotrypa major Ulrich.

1888. Streblotrypa major. Ulrich, Bull. Denison Univ., IV, p. 84, pl. xiv, 10.
1890. Streblotrypa major. Ulrich, Geol. Surv. Illinois, VIII, p. 666, pl. lxxi, 8–8*d*, pl. lxxii, 1, 1*a*.
1894. Streblotrypa major. Keyes, Missouri Geol. Surv., V, p. 35.
Waverly: Richfield, Ohio.
Keokuk: Kings Mountain, Kentucky; Keokuk, Iowa; Nauvoo, Illinois.

Streblotrypa multiporata Ulrich.

1888. Streblotrypa multiporata. Ulrich, Bull. Denison Univ., IV, p. 87, pl. xiv, 11.
Waverly: Moots Run, Ohio.

Streblotrypa nicklesi Ulrich.

1884. Streblotrypa nicklesi. Ulrich (Mss.).
1884. Streblotrypa Nicklesi. Vine, Proc. Yorkshire Geol. Polyt. Soc., VIII, p. 107, pl. xxi, 4, 5.
1885. Streblotrypa Nicklesi. Vine, Proc. Yorkshire Geol. Polyt. Soc., IX, p. 96.
1890. Streblotrypa nicklesi. Ulrich, Geol. Surv. Illinois, VIII, p. 667, pl. lxxi, 9–9*c*.
1894. Streblotrypa nicklesi. Keyes, Missouri Geol. Surv., V, p. 36.
Chester: Kaskaskia, Chester, Red Bud, Anna, and other localities, Illinois; Sloans Valley, Kentucky.
Carboniferous: England (Vine).
Obs. See also Streblotrypa prisca (Gabb and Horn).

Streblotrypa obliqua Ulrich.

1888. Streblotrypa obliqua. Ulrich, Bull. Denison Univ., IV, p. 85, pl. xiv, 9.
Waverly: Lodi, Ohio.

Streblotrypa prisca (Gabb and Horn).

1862. Cavea prisca. Gabb and Horn, Jour. Acad. Nat. Sci. Philadelphia, ser. 2, V, p. 175, pl. xxi, 67.

Carboniferous: Fort Belknap, Texas.

Obs. This species resembles Streblotrypa nicklesi Ulrich, but has much larger cells.

Streblotrypa radialis Ulrich.

1890. Streblotrypa radialis. Ulrich, Geol. Surv. Illinois, VIII, p. 667, pl. lxxii, 2–2*c*.

1894. Streblotrypa radialis. Keyes, Missouri Geol. Surv., V, p. 35.

Keokuk: Near Nauvoo, Illinois; Bentonsport, Iowa.

Streblotrypa regularis Ulrich.

1888. Streblotrypa regularis. Ulrich, Bull. Denison Univ., IV, p. 88, pl. xiv, 14.

Waverly: Burbank and Cuyahoga County, Ohio.

Streblotrypa scutulata (Hall).

1883. Trematopora scutulata. Hall, Trans. Albany Institute, X, p. 180 (abstract, 1881, p. 180).

1884. Trematopora scutulata. Hall, Rep. State Geologist New York for the yea 1883, p. 7.

1887. Acanthoclema scutulatum. Hall and Simpson, Pal. New York, VI, p. 190, pl. lv, 15, 16, ? 17; pl. lvi, 19, ? 20.

1890. Streblotrypa scutulata. Ulrich, Geol. Surv. Illinois, VIII, p. 648.

1899. Acanthoclema scutulatum. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 166, fig. 58.

Hamilton: York and Hamburg, New York.

Streblotrypa striata Ulrich.

1888. Streblotrypa striata. Ulrich, Bull. Denison Univ., IV, p. 87, pl. xiv, 12, 12*a*.

Waverly: Richfield and Cuyahoga County, Ohio.

Streblotrypa subspinosa Ulrich.

1890. Streblotrypa subspinosa. Ulrich, Geol. Surv. Illinois, VIII, p. 668, pl. lxxi, 7, 7*a*.

Chester: Chester, Illinois; Sloans Valley, Kentucky.

Stromatopora lichenoides James. See Arthropora shafferi (Meek).

STROMATOTRYPA Ulrich. Genotype: Stromatotrypa ovata Ulrich.

1893. Stromatotrypa. Ulrich, Geol. Minnesota, III, p. 301.

Stromatotrypa ovata Ulrich.

1893. Stromatotrypa ovata. Ulrich, Geol. Minnesota, III, p. 302, pl. xxiv, 24–31.

Trenton (Stones River and Black River): Minneapolis and St. Paul, Minnesota; Beloit, Wisconsin.

STROTOPORA Ulrich. Genotype: Strotopora foveolata Ulrich.

1890. Strotopora. Ulrich, Geol. Surv. Illinois, VIII, pp. 383, 486.

1889. Strotopora. (Ulrich, in press), Miller, North American Geol. Pal., p. 326.

1896. Strotopora. Ulrich, Zittel's Textb. Pal. (Engl. ed.), p. 270.

1897. Strotopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 560.

Strotopora dermata Ulrich.

1890. Strotopora dermata. Ulrich, Geol. Surv. Illinois, VIII, p. 488, pl. lxxvii, 8, 8*a*.

1894. Strotopora dermata. Keyes, Missouri Geol. Surv., V, p. 17.

Strotopora dermata Ulrich—Continued.

1897. Strotopora dermata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 127 (p. 560).

Keokuk: Keokuk, Iowa; Warsaw, Illinois.

Strotopora foveolata Ulrich.

1890. Strotopora foveolata. Ulrich, Geol. Surv. Illinois, VIII, p. 487, pl. lxxvii, 9, 9*a*.

1894. Strotopora foveolata. Keyes, Missouri Geol. Surv., V, p. 17.

1896. Strotopora foveolata. Ulrich, Zittel's Textb. Pal. (Engl. ed.), fig. 445 (p. 270).

1897. Strotopora foveolata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 126 (p. 560).

Keokuk: Bentonsport, Iowa; Warsaw, Illinois.

Strotopora perminuta Ulrich.

1890. Strotopora perminuta. Ulrich, Geol. Surv. Illinois, VIII, p. 487, pl. xlvii, 4–4*b*.

Hamilton: Falls of the Ohio.

Subretepora D'Orbigny. Not recognized (see Geol. Surv. Illinois, VIII, p. 687).

1850. Subretepora. D'Orbigny, Prodr. de Pal., I, p. 22.

Subretepora angulata Miller. See Phylloporina angulata (Hall).

Subretepora aspera Miller. See Phylloporina aspera (Hall).

Subretepora asperato-striata Miller. See Phylloporina asperato-striata (Hall).

Subretepora clathrata Miller. See Phylloporina clathrata (Miller and Dyer).

Subretepora corticosa Miller. See Phylloporina corticosa (Ulrich).

Subretepora dawsoni Miller. See Phylloporina dawsoni Ulrich.

Subretepora dichotoma Miller. See Thamniscus dichotomus (Hall).

Subretepora fenestrata Miller. See Phylloporina fenestrata (Hall).

Subretepora gracilis Miller. See Phylloporina gracilis (Hall).

Subretepora incepta Miller. See Phylloporina incepta (Hall).

Subretepora reticulata Miller. See Phylloporina reticulata (Hall).

Subretepora trentonensis Miller. See Phylloporina trentonensis (Nicholson).

Subretepora variolata Miller. See Phylloporina variolata (Ulrich).

Sulcopora D'Orbigny. Not recognized (see Geol. Surv. Illinois, VIII, p. 687).

1850. Sulcopora. D'Orbigny, Prodr. de Pal., I, p. 22.

Sulcopora fenestrata D'Orbigny. See Rhinidictya fenestrata (Hall).

SYNOCLADIA King. Genotype: Retepora virgulacea Phillips.

1849. Synocladia. King, Ann. Mag. Nat. Hist., ser. 2, II, p. 388.

1850. Synocladia. King, Mon. Permian Foss., p. 38.

1854. Synocladia. McCoy, Brit. Pal. Foss., p. 114.

1875. Synocladia. Etheridge, Jun., Proc. Geol. Assoc., IV, p. 116.

1885. Synocladia. Hall, Rep. State Geologist New York for the year 1884, p. 37.

1885. Synocladia. Waagen and Pichl, Pal. Indica, Ser., XIII, pp. 774, 801.

1886. Synocladia. Ulrich, Contr. American Pal., I, p. 6.

SYNOCLADIA King—Continued.

1889. Synocladia. Miller, North American Geol. Pal., p. 326.

1890. Synocladia. Ulrich, Geol. Surv. Illinois, VIII, p. 398.

1895. Synocladia. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 720, 726; Forty-seventh Ann. Rep. New York State Mus., pp. 914, 920.

1896. Synocladia. Ulrich, Zittel's Textb. Pal. (Eng. ed.), p. 283.

1897. Synocladia. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 513, 521.

Synocladia biserialis Swallow. See Septopora biserialis (Swallow).

Synocladia biserialis var. gracilis Meek. See Septopora biserialis-gracilis Meek.

Synocladia rectistyla Whitfield. See Septopora rectistyla (Whitfield).

Synocladia virgulacea Swallow (not Phillips, nor King). See Septopora biserialis (Swallow).

Obs. See also Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 513, 514.

Tabulipora Young. See Stenopora Lonsdale.

TÆNIODICTYA Ulrich. Genotype: Tæniodictya ramulosa Ulrich.

1890. Tæniodictya. Ulrich, Geol. Surv. Illinois, VIII, p. 393.

1889. Tæniodictya. (Ulrich, in press), Miller, North American Geol. Pal., p. 327.

1897. Tæniodictya. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 533.

Tæniodictya cingulata Ulrich.

1890. Tæniodictya cingulata. Ulrich, Geol. Surv. Illinois, VIII, p. 530, pl. lxvii, 3–3*b*, fig. 2*b* (p. 304).

Keokuk: Warsaw, Illinois.

Tæniodictya frondosa Ulrich.

1890. Tæniodictya frondosa. Ulrich, Geol. Surv. Illinois, VIII, p. 259, pl. lxvii, 5, pl. lxix, 5–5*c*.

1894. Tæniodictya frondosa. Keyes, Missouri Geol. Surv., V, p. 22.

Keokuk: Keokuk, Iowa; Nauvoo, Illinois.

Tæniodictya interpolata Ulrich.

1888. Tæniodictya interpolata. Ulrich, Bull. Denison Univ., IV, p. 80, pl. xiii, 9, 9*a*.

Waverly: Richfield and Cuyahoga County, Ohio.

Tæniodictya ramulosa Ulrich.

1890. Tæniodictya ramulosa. Ulrich, Geol. Surv. Illinois, VIII, p. 528, pl. lxvii, 1–1*l*.

1894. Tæniodictya ramulosa. Keyes, Missouri Geol. Surv., V, p. 22.

1897. Tæniodictya ramulosa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 89, 90 (p. 533).

Keokuk: Keokuk, Iowa; Nauvoo and Warsaw, Illinois.

Tæniodictya ramulosa-burlingtonensis Ulrich.

1890. Tæniodictya ramulosa var. burlingtonensis. Ulrich, Geol. Surv. Illinois, VIII, p. 529, pl. lxvii, 2–2*b*.

Burlington: Burlington, Iowa.

Tæniodictya ? rhomboidea (Hall).

1883. Stictopora rhomboidea. Hall, Trans. Albany Institute, X, p. 157 (abstract, 1881, p. 15).
1886. Stictopora rhomboidea. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxix, 27, 28.
1887. Stictopora rhomboidea. Hall and Simpson, Pal. New York, VI, p. 95, pl. xxix, 27, 28.
Upper Helderberg: West of Le Roy, New York.

Tæniodictya subrecta Ulrich.

1890. Tæniodictya subrecta. Ulrich, Geol. Surv. Illinois, VIII, p. 530, pl. lxvii, 4–4*d*.
St. Louis: Elizabethtown, Kentucky.

TÆNIOPORA Nicholson. Genotype: Tæniopora exigua Nicholson.

1874. Tæniopora. Nicholson, Canadian Jour., new ser., XIV, p. 133.
1874. Tæniopora. Nicholson, Geol. Mag., new ser., I, p. 121.
1874. Tæniopora. Nicholson, Pal. Province Ontario, p. 107.
1883. Tæniopora. Hall, Trans. Albany Institute, X, p. 192 (abstract, 1881, p. 192).
1884. Tæniopora. Hall, Rep. State Geologist New York for the year 1883, p. 49.
1887. Tæniopora. Hall and Simpson, Pal. New York, VI, p. xxi.
1889. Tæniopora. Miller, North American Geol. Pal., p. 327.
1890. Tæniopora. Ulrich, Geol. Surv. Illinois, VIII, p. 386.
1896. Tæniopora. Ulrich, Zittel's Textb. Pal. (Eng. ed.), p. 280.
1897. Tæniopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 533.
1899. Tæniopora. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 174.
1883. Pteropora. Hall, Trans. Albany Institute, X, p. 192 (abstract, 1881, p. 192).
1897. Stictoporidra. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 527.
1897. Stictoporina (in error for Stictoporidra). Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 532 (not p. 543).

Tæniopora exigua Nicholson.

1874. Tæniopora exigua. Nicholson, Geol. Mag., new ser., I, p. 122, pl. vi, 13.
1874. Tæniopora exigua. Nicholson, Pal. Province Ontario, p. 108, fig. 47.
1883. Tæniopora exigua. Hall, Trans. Albany Institute, X, p. 192 (abstract, 1881, p. 192).
1884. Tæniopora exigua. Hall, Rep. State Geologist New York for the year 1883, p. 49.
1887. Tæniopora exigua. Hall and Simpson, Pal. New York, VI, p. 263, pl. lxii, 15–26.
1897. Tæniopora exigua. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xi, 12–16, pl. xii, 1–5.
1899. Tæniopora exigua. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 174, fig. 71.
1883. Pteropora duogeneris. Hall, Trans. Albany Institute, X, p. 192 (abstract, 1881, p. 192).
Hamilton: Arkona, Ontario; Bellona, West Hamburg, and other localities in New York.

Tæniopora occidentalis Ulrich.

1890. Tæniopora occidentalis. Ulrich, Geol. Sur. Illinois, VIII, p. 505, pl. xlii, 3–3*c*.
Hamilton: Buffalo, Iowa.

Tæniopora penniformis Nicholson.

1874. Tæniopora penniformis. Nicholson, Geol. Mag., new ser., I, p. 123, pl. vi, 12.

1874. Tæniopora penniformis. Nicholson, Pal. Province Ontario, p. 109, fig. 46.

1890. Tæniopora penniformis. Ulrich, Geol. Sur. Illinois, VIII, p. 505, pl. xlii, *3d*.

Hamilton: Arkona, Ontario; Eighteenmile Creek, New York.

Tæniopora recubans (Hall and Simpson).

1887. Stictopora recubans. Hall and Simpson, Pal. New York, VI, p. 260, pl. lxiii, 20, 21.

1891. Stictopora recubans. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 51; Forty-fourth Ann. Rep. New York State Mus., p. 81.

Hamilton: Seneca Lake, New York.

Obs. This may be identical with Tæniopora subcarinata (Hall).

Tæniopora subcarinata (Hall).

1883. Stictopora ? subcarinata. Hall, Trans. Albany Institute, X, p. 191 (abstract, 1881, p. 191).

1887. Stictopora subcarinata. Hall and Simpson, Pal. New York, VI, p. 261, pl. lxiii, 1–6.

1891. Stictopora subcarinata. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 52; Forty-fourth Ann. Rep. New York State Mus., p. 82

1897. Stictoporina subcarinata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. x, 8, pl. xii, 6.

1884. Stictopora? dichotoma. Hall, Rep. State Geologist New York for the year 1883, p. 48.

Hamilton: Bellona, Alden Station, and York, New York.

Obs. See note under Tæniopora recubans (Hall).

Tectulipora Hall. See Loculipora Hall.

Tectulipora biperforata Simpson. See Loculipora loculata (Hall).

Tectulipora loculata Simpson. See Loculipora loculata (Hall).

Tectuliporella Simpson. See Isotrypa Hall.

Tectuliporella consimilis Simpson. See Isotrypa consimilis Hall.

THALLOSTIGMA Hall. Genotype: Thallostigma intercellata Hall.

1883. Thallostigma. Hall, Trans. Albany Institute, X, p. 154 (abstract, 1881, p. 12).

Obs.—This name seems to have been regarded by its author in his later work as a synonym of Fistulipora. The original definition is of little value, but a study of the genotype is likely to show that the name may be held for a group of species now included under Lioclema, of which Lioclema minutum (Rominger) is a typical example. Having no authentic specimens of the genotype, we have not made these changes, but have left this species and the closely allied, if not identical, Hamilton group forms under Lioclema.

Thallostigma confertipora Hall. See Lioclema confertiporum (Hall).

Thallostigma decipiens Hall. See Lioclema decipiens (Hall).

Thallostigma densa Hall. See Lioclema densum (Hall).

Thallostigma digitata Hall. See Lioclema digitatum (Hall).

Thallostigma inclusa Hall. See Favicella inclusa (Hall).

Thallostigma inclusapora Hall. See Favicella inclusa (Hall).

Thallostigma intercellata Hall. See Lioclema intercellatum (Hall).

Thallostigma lamellata Hall. See Fistulipora ? lamellata (Hall).
Thallostigma longimacula Hall. See Fistulipora ? longimacula (Hall).
Thallostigma micropora Hall. See Lioclema microporum (Hall).
Thallostigma multaculeata Hall. See Lioclema multaculeatum (Hall).
Thallostigma plana Hall. See Pinacotrypa plana (Hall).
Thallostigma scrobiculata Hall. See Fistulipora ? scrobiculata (Hall).
Thallostigma segregata Hall. See Lioclema segregatum (Hall).
Thallostigma serrulata Hall. See Pinacotrypa serrulata (Hall).
Thallostigma sparsipora Hall. See Prismopora sparsipora (Hall).
Thallostigma spheroidea Hall. See Lioclema ? spheroideum (Hall).
Thallostigma striata Hall. See Lioclema minutum (Rominger).
Thallostigma subtilis Hall. See Lioclema subtile (Hall).
Thallostigma triangularis Hall. See Fistulipora ? triangularis (Hall).
Thallostigma umbilicata Hall. See Fistulipora ? umbilicata (Hall).
Thallostigma variapora Hall. See Pinacotrypa variapora (Hall).

Thamnicella ascuta Simpson.
1897. Thamnicella ascuta Hall. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. ix, 6–8.
Obs. Simpson ascribes this species to Hall, but we are unable to find it in any of the latter's works.

Thamnicella Cisseis Simpson. See Drymotrypa cisseis (Hall).
Thamnicella Nysa Simpson. See Thamniscus nysa Hall.

THAMNISCUS King. Genotype: Ceratophytes dubius Schlotheim.
1849. Thamniscus. King, Ann. Mag. Nat. Hist., ser. 2, II, p. 389.
1850. Thamniscus. King, Perm. Foss. England, p. 44.
1860. Thamniscus. Eichwald, Lethæa Rossica, I, p. 386.
1875. Thamniscus. Etheridge, Jun., Proc. Geol. Assoc., IV, p. 120.
1882. Thamniscus. Shrubsole, Quar. Jour. Geol. Soc. London, XXXVIII, p. 343.
1885. Thamniscus. Vine, Proc. Yorkshire Geol. Polyt. Soc., IX, p. 89.
1885. Thamniscus. Waagen and Pichl, Pal. Indica, Ser. XIII, p. 807.
1886. Thamniscus. Ulrich, Contr. American Pal., I, p. 5.
1887. Thamniscus. Hall and Simpson, Pal. New York, VI, p. xxii.
1889. Thamniscus. Miller, North American Geol. Pal., p. 327.
1890. Thamniscus. Ulrich, Geol. Sur. Illinois, VIII, pp. 397, 606.
1896. Thamniscus. Ulrich, Zittel's Textb. Pal. (Eng. ed.), p. 283.
1897. Thamniscus. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 524.

Thamniscus ? Cisseis Hall. See Drymotrypa cisseis (Hall).

Thamniscus dichotomus (Hall).
1852. Hornera ? dichotoma. Hall, Pal. New York, II, p. 163, pl. xlC, 3*a–d*.
1889. Subretepora dichotoma. Miller, North American Geol. Pal., p. 326.
1890. Thamniscus dichotoma. Ulrich, Geol. Sur. Illinois, VIII, p. 607.
Niagara: Lockport and Rochester, New York.

Thamniscus divaricans Ulrich.
1890. Thamniscus divaricans. Ulrich, Geol. Sur. Illinois, VIII, p. 608, pl. lxii, 6–6*c*.
Keokuk: Kings Mountain, Kentucky.

Thamniscus fruticellus Hall.

1879. Thamniscus fruticella. Hall, Thirty-second Ann. Rep. New York State Museum, p. 176 (reprint, 1880, p. 37).

1883. Thamniscus fruticella. Hall, Rep. State Geologist New York for the year 1882, pl. xxii, 33.

1887. Thamniscus fruticella. Hall and Simpson, Pal. New York, VI, p. 42, pl. xxii, 33.

Lower Helderberg: Clarksville, New York.

Thamniscus furcillatus Ulrich.

1890. Thamniscus furcillatus. Ulrich, Geol. Sur. Illinois, VIII, p. 609, pl. lxii, 9–9*b*.

1894. Thamniscus furcillatus. Keyes, Missouri Geol. Sur., V, p. 31, pl. xxxiii, 6.

Chester: Chester, Kaskaskia, Red Bud, and other localities in Illinois; Sloans Valley and Litchfield, Kentucky.

Thamniscus multiramus Hall.

1883. Thamniscus multiramus. Hall, Trans. Albany Institute, X, p. 161 (abstract, 1881, p. 19).

1883. Thamniscus multiramus. Hall, Rep. State Geologist New York for the year 1882, pl. xxvi, 1–5.

1887. Thamniscus multiramus. Hall and Simpson, Pal. New York, VI, p. 104, pl. xxxiii, 1–5.

Upper Helderberg: Schoharie, New York.

Thamniscus nanus Hall.

1883. Thamniscus nanus. Hall, Trans. Albany Institute, X, p. 161 (abstract, 1881, p. 19).

1887. Thamniscus nanus. Hall and Simpson, Pal. New York, VI, p. 292, pl. lxvi, 11–13.

1897. Thamniscus nanus. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. ix, 18.

Hamilton: Falls of the Ohio.

Thamniscus ? Niagarensis Hall. See Drymotrypa niagarensis (Hall).

Thamniscus nysa Hall.

1879. Thamniscus Nysa. Hall, Thirty-second Ann. Rep. New York State Museum, p. 175 (reprint, 1880, p. 38); and var., p. 176 (reprint, p. 38).

1883. Thamniscus Nysa. Hall, Rep. State Geologist New York for the year 1882, pl. xxii, 47, 48; and var., pl. xxii, 31, 32.

1887. Thamniscus Nysa. Hall and Simpson, Pal. New York, VI, p. 43, pl. xxii, 31, 32, 47, 48.

1897. Thamnicella Nysa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. ix, 4, 5.

Lower Helderberg: Clarksville, New York.

Thamniscus octonarius Ulrich.

1890. Thamniscus octonarius. Ulrich, Geol. Sur. Illinois, VIII, p. 611, pl. lxii, 7–7*b*.

Upper Coal Measures: Greenwood County, Kansas.

Thamniscus pauciramus Hall.

1883. Thamniscus pauciramus. Hall, Trans. Albany Institute, X, p. 197 (abstract, 1881, p. 197).

1884. Thamniscus pauciramus. Hall, Rep. State Geologist New York for the year 1883, p. 60.

1887. Thamniscus pauciramus. Hall and Simpson, Pal. New York, VI, p. 274.

Thamniscus pauciramus Hall—Continued.

1891. Thamniscus pauciramus. Hall, Tenth Ann. Rep. State Geologist New York for the year 1890, p. 55; Forty-fourth Ann. Rep. New York State Museum, p. 85.

Hamilton: Monteiths Point, Lake Canandaigua, New York.

Thamniscus ramulosus Ulrich.

1890. Thamniscus ramulosus. Ulrich, Geol. Sur. Illinois, VIII, p. 610, pl. lxii, 4–4*b*.

Chester: Sloans Valley, Kentucky; Chester, Illinois.

Thamniscus ramulosus var. sevillensis Ulrich. See Thamniscus sevillensis Ulrich.

Thamniscus sculptilis Ulrich.

1890. Thamniscus sculptilis. Ulrich, Geol. Sur. Illinois, VIII, p. 608, pl. lxii, 8–8*b*.

Keokuk: Kings Mountain, Kentucky.

Thamniscus sevillensis Ulrich.

1890. Thamniscus ramulosus var. sevillensis. Ulrich, Geol. Sur. Illinois, VIII, p. 610, pl. lv, 6, pl. lxii, 5, 5*a*.

Lower Coal Measures: Seville, Illinois.

Thamniscus variolatus Hall.

1879. Thamniscus variolata. Hall, Thirty-second Ann. Rep. New York State Museum, p. 175 (reprint, 1880, p. 37).

1883. Thamniscus variolata. Hall, Rep. State Geologist New York for the year 1882, pl. xxii, 34–46.

1887. Thamniscus variolata. Hall and Simpson, Pal. New York, VI, p. 41, pl. xxii, 34–46.

1897. Thamniscus variolata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. ix, 14.

Lower Helderberg: Clarksville, New York.

Thamnocella Simpson. See Drymotrypa Ulrich.

Thamnocella Cisseis Simpson. See Drymotrypa cisseis (Hall).

Thamnopora Hall (not Steininger). See Thamnotrypa Hall.

Thamnopora divaricata Hall. See Thamnotrypa divaricata (Hall).

THAMNOTRYPA Hall. Genotype: Thamnopora divaricata Hall.

1883. Thamnopora. Hall, Trans. Albany Institute, X, p. 158 (abstract, 1881, p. 16). (Name was preoccupied by Steininger.)

1887. Thamnotrypa. Hall and Simpson, Pal. New York, VI, p. xxi.

1889. Thamnotrypa. Miller, North American Geol. Pal., p. 328.

1897. Thamnotrypa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 546.

Obs. Thamnotrypa is probably a synonym of Tæniopora Nicholson.

Thamnotrypa divaricata (Hall).

1883. Thamnopora divaricata. Hall, Trans. Albany Institute, X, p. 158 (abstract, 1881, p. 16).

1883. Thamnopora divaricata. Hall, Rep. State Geologist New York for the year 1882, pl. xxvi, 9, 10.

1887. Thamnotrypa divaricata. Hall and Simpson, Pal. New York, VI, p. 101, pl. xxxiii, 9, 10.

1897. Thamnotrypa divaricata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xii, 7, 8.

Upper Helderberg: Near Buffalo, New York.

Thecostegites hemisphericus F. Roemer. See Fistulipora hemispherica (F. Roemer).

TREMATELLA Hall. Genotype: Trematopora annulata Hall.

1886. Trematella. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, explanation pl. xxv.
1887. Trematella. Hall and Simpson, Pal. New York, VI, p. xiv.
1889. Trematella. Miller, North American Geol. Pal., p. 329.
1897. Trematella. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 550.

Obs. Trematella is probably a synonym for Batostomella, but until the genotype is better known the present arrangement seems best.

Trematella annulata (Hall).

1883. Trematopora ? annulata. Hall, Trans. Albany Institute, X, p. 147 (abstract, 1881, p. 5).
1883. Trematopora ? annulata. Hall, Rep. State Geologist New York for the year 1882, pl. (26) xxiv, 1, 2.
1886. Trematella annulata. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxv, 22–24.
1887. Trematopora (Trematella) annulata. Hall and Simpson, Pal. New York, VI, p. 69, pl. xxv, 22, 23, pl. xxvi, 1, 2.
1893. Batostomella annulata. Ulrich, Geol. Minnesota, III, p. 229.
1897. Trematella annulata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xix, 6–9.
1883. Trematopora ? annulata var. pronaspina. Hall, Trans. Albany Institute, X, p. 148 (abstract, 1881, p. 6).

Hamilton: Falls of the Ohio.

Trematella arborea (Hall).

1883. Trematopora arborea. Hall, Trans. Albany Institute, X, p. 147 (abstract, 1881, p. 5).
1886. Trematella arborea. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxv, 16–21.
1887. Trematopora (Trematella) arborea. Hall and Simpson, Pal. New York, VI, p. 69, pl. xxv, 16–21.

Hamilton: Falls of the Ohio

Trematella glomerata (Hall).

1886. Trematella glomerata. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxv, 4, 5.
1887. Trematopora (Trematella) glomerata. Hall and Simpson, Pal. New York, VI, p. 70, pl. xxv, 4, 5.

Upper Helderberg: Onondaga Valley, New York.

Trematella nodosa (Hall and Simpson).

1887. Trematopora (Trematella) nodosa. Hall and Simpson, Pal. New York, VI, p. 176.

Hamilton: Jaycox's Run, New York.

Trematella perspinulata (Hall).

1883. Trematopora perspinulata. Hall, Trans. Albany Institute, X, p. 181 (abstract, 1881, p. 181).
1884. Trematopora perspinulata. Hall, Rep. State Geologist New York for the year 1883, p. 11.
1887. Trematopora (Trematella) perspinulata. Hall and Simpson, Pal. New York, VI, p. 175.

Trematella perspinulata (Hall)—Continued.

1893. Batostomella perspinulata. Ulrich, Geol. Minnesota, III, p. 229.
Hamilton: York, New York.

TREMATOPORA Hall. Genotype: Trematopora tuberculosa Hall.

1852. Trematopora. Hall, Pal. New York, II, p. 149.
1860. Trematopora. Eichwald, Lethæa Rossica, I, p. 494.
1877. Trematopora. Dybowski, Die Chætetiden der Ostbaltischen Silur-Form., p. 69.
1887. Trematopora. Hall and Simpson, Pal. New York, VI, p. xiv.
1889. Trematopora. Miller, North American Geol. Pal., p. 328.
1890. Trematopora. Ulrich, Geol. Sur. Illinois, VIII, pp. 373, 418.
1893. Trematopora. Ulrich, Geol. Minnesota, III, p. 308.
1897. Trematopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 591.
Not Trematopora. Ulrich, Jour. Cincinnati Soc. Nat. Hist., V, 1882, pp. 153, 241; ibid., VI, 1883, p. 257 (=Homotrypa).

Trematopora alternata Hall. See Acanthoclema alternatum (Hall).

Trematopora ?? americana Miller.

1881. Trematopora americana. Miller, Jour. Cincinnati Soc. Nat. Hist., IV, p. 312, pl. vii, 5, 5*a*.
Burlington: New Mexico.

Trematopora ? annulata Hall. See Trematella annulata (Hall).

Trematopora (Trematella) annulata Hall and Simpson. See Trematella annulata (Hall).

Trematopora annulata var. pronaspina Hall. See Trematella annulata (Hall).

Trematopora annulifer Whitfield. See Lioclemella annulifera (Whitfield).

Trematopora arborea Hall. See Trematella arborea (Hall).

Trematopora (Trematella) arborea Hall and Simpson. See Trematella arborea (Hall).

Trematopora aspera Hall. See Batostomella ? aspera (Hall).

Trematopora (Orthopora) bispinulata Hall and Simpson. See Streblotrypa ? bispinulata (Hall).

Trematopora calloporoides Ulrich.

1890. Trematopora calloporoides. Ulrich, Geol. Sur. Illinois, VIII, p. 420, pl. xxxviii, 1–1*d*.
Trenton: Alexander County, Illinois.

Trematopora camerata Hall. See Chilotrypa camerata (Hall).

Trematopora canaliculata Hall. See Orthopora canaliculata (Hall).

Trematopora (Orthopora) canaliculata Hall. See Orthopora canaliculata (Hall).

Trematopora carinata Whiteaves. See Orthopora carinata (Hall and Simpson).

Trematopora (Orthopora) carinata Hall and Simpson. See Orthopora carinata (Hall and Simpson).

Trematopora claviformis Hall. See Stictoporina claviformis (Hall).

Trematopora coalescens Hall. See Chilotrypa ? coalescens (Hall.)

Trematopora constricta Hall. See Chilotrypa ? constricta (Hall).

Trematopora corticosa Hall. See Eridotrypa corticosa (Hall).

Trematopora (Chætetes) corticosa Hall. See Eridotrypa corticosa (Hall).

Trematopora ? (Trematella ?) corticosa Hall. See Eridotrypa corticosa (Hall).

Trematopora crassa Hall. See Fistulipora crassa (Hall).

Trematopora crebripora Hall. Not recognizable.

1883. Trematopora (Chætetes) crebripora. Hall, Trans. Albany Institute, X, p. 59 (abstract 1879, p. 3).

1882. Trematopora (Chætetes) crebripora. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 236.

Niagara: Waldron, Indiana.

Trematopora debilis Ulrich.

1890. Trematopora debilis. Ulrich, Geol. Sur. Illinois, VIII, p. 419, pl. xxxiv, 3–3*e*.

Trenton: Alexander County, Illinois.

Trematopora densa Hall. See Monotrypella ? densa (Hall).

Trematopora (Chætetes) densa Hall. See Monotrypella ? densa (Hall).

Trematopora dispersa Hall. See Chilotrypa dispersa (Hall).

Trematopora echinata Hall. See Eridotrypa echinata (Hall).

Trematopora (Orthopora) elongata Hall and Simpson. See Orthopora elongata (Hall and Simpson).

Trematopora ?? fragilis Winchell.

1864. Trematopora fragilis. Winchell, Proc. Acad. Nat. Sci. Philadelphia, p. 3.

Burlington: Burlington, Iowa.

Trematopora (Trematella) glomerata Hall and Simpson. See Trematella glomerata (Hall).

Trematopora (Orthopora) granifera Hall and Simpson. See Orthopora granifera (Hall and Simpson).

Trematopora (Orthopora) granilinea Hall and Simpson. See Orthopora granilinea (Hall and Simpson).

Trematopora ? granistriata Hall. See Bactropora granistriata (Hall).

Trematopora ?? granulata Whitfield.

1878. Trematopora granulata. Whitfield, Ann. Rep. Geol. Sur. Wisconsin for the year 1877, p. 68.

1882. Trematopora granulata. Whitfield, Geol. Sur. Wisconsin, IV, p. 253, pl. xi, 22, 23.

Cincinnati (Richmond): Delafield, Wisconsin.

Obs. This species probably belongs to the genus Eridotrypa.

Trematopora granulifera Hall. See Batostomella granulifera (Hall).

Trematopora halli Ulrich.

1883. Trematopora halli. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 261, pl. xiii, 3, 3*a*.

Niagara: Waldron, Indiana.

Trematopora (Orthopora) hexagona Hall and Simpson. See Orthopora hexagona (Hall and Simpson).

Trematopora (Orthopora) immersa Hall and Simpson. See Orthopora immersa (Hall and Simpson).

Trematopora infrequens Hall. See Diamesopora infrequens (Hall).

Trematopora (Orthopora) interplana Hall and Simpson. See Orthopora interplana (Hall and Simpson).

Trematopora (Callopora) irregularis Hall. See Chilotrypa irregularis (Hall).

Trematopora (Orthopora) lineata Hall and Simpson. See Orthopora lineata (Hall and Simpson).

Trematopora ? (Trachypora ?) macropora Hall. See Nematopora macropora (Hall).

Trematopora maculosa Hall. See Fistulipora maculosa (Hall).

Trematopora minuta Hall. See Nematopora minuta (Hall).

Trematopora ? (Trachypora ?) minuta Hall. See Nematopora minuta (Hall).

Trematopora ? nitida Ulrich. See Lioclemella nitida (Ulrich).

Trematopora (Orthopora) nodosa Hall. Not defined.

1887. Trematopora (Orthopora) nodosa. Hall, Pal. New York, VI, pl. xxiii, 10.
Lower Helderberg: Clarksville, New York.

Trematopora (Trematella) nodosa Hall and Simpson. See Trematella nodosa (Hall and Simpson).

Trematopora orbipora Hall. See Orthopora orbipora (Hall).

Trematopora (Orthopora ?) orbipora Hall and Simpson. See Orthopora orbipora (Hall).

Trematopora ornata Ulrich. See Trematopora ? primigenia-ornata Ulrich.

Trematopora (Orthopora) ornata Hall and Simpson. See Orthopora ornata (Hall and Simpson).

Trematopora osculum Hall. See Diamesopora osculum (Hall).

Trematopora ostiolata Hall. See Chilotrypa ostiolata (Hall).

Trematopora ovatipora Hall. See Orthopora ovatipora (Hall).

Trematopora (Orthopora) ovatipora Hall and Simpson. See Orthopora ovatipora (Hall).

Trematopora parallela Hall. See Orthopora parallela (Hall).

Trematopora (Orthopora) parallela Hall and Simpson. See Orthopora parallela (Hall).

Trematopora perspinulata Hall. See Trematella perspinulata (Hall).

Trematopora (Trematella) perspinulata Hall and Simpson. See Trematella perspinulata (Hall).

Trematopora polygona Hall. See Orthopora polygona (Hall).

Trematopora (Orthopora) polygona Hall and Simpson. See Orthopora polygona (Hall).

Trematopora ponderosa Hall. See Fistulipora maculosa (Hall).

Trematopora ? primigenia Ulrich.

1886. Trematopora primigenia. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 97.

1893. Trematopora ? primigenia. Ulrich, Geol. Minnesota, III, p. 309, pl. xxi, 23–40.

Trenton (Black River): Minneapolis, St. Paul, Fountain and Preston, Minnesota.

Trematopora ? primigenia-ornata Ulrich.

1886. Trematopora ornata. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 98.

1893. Trematopora ? primigenia var. ornata. Ulrich, Geol. Minnesota, III, p. 310, pl. xxi, 26, 28, 33, 34.

Trenton (Black River): Minneapolis and St. Paul, Minnesota.

Trematopora ? primigenia-spinosa Ulrich.

1893. Trematopora ? primigenia var. spinosa. Ulrich, Geol. Minnesota, III, p. 310, pl. xxi, 29, 30, 35, 36.

Trenton (Black River): Minneapolis and St. Paul, Minnesota.

Trematopora ?? punctata Hall.

1852. Trematopora punctata. Hall, Pal. New York, II, p. 151, pl. xlA, 4*a–c*.

Niagara: Lockport, New York.

Trematopora rectilinea Hall. Not recognized.

1883. Trematopora rectilinea. Hall, Trans. Albany Institute, X, p. 148 (abstract, 1881, p. 6).

Upper Helderberg: Onondaga Valley, New York.

Trematopora regularis Hall. See Orthopora regularis (Hall).

Trematopora (Orthopora) regularis Hall and Simpson. See Orthopora regularis (Hall).

Trematopora (Orthopora) reticulata Hall and Simpson. See Orthopora reticulata (Hall).

Trematopora rhombifera Hall. See Orthopora rhombifera (Hall) and Stictopora ?? granatula Hall.

Trematopora (Orthopora) rhombifera Hall and Simpson. See Orthopora rhombifera (Hall).

Trematopora scutulata Hall (Upper Helderberg). See Orthopora scutulata (Hall).

Trematopora scutulata Hall (Hamilton). See Streblotrypa scutulata (Hall).

Trematopora (Orthopora) scutulata Hall (Upper Helderberg). See Orthopora scutulata (Hall).

Trematopora signata Hall. See Callotrypa macropora-signata (Hall).

Trematopora ? singularis (Hall).

1876. Callopora singularis. Hall, Twenty-eighth Ann. Rep. New York State Museum (documentary edition), pl. x, 1, 2; ibid. (Museum edition), p. 115, pl. x, 1, 2.

1882. Callopora singularis. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 237, pl. ix, 1, 2.

1890. Leioclema singulare. Ulrich, Geol. Sur. Illinois, VIII, p. 425.

Niagara: Waldron, Indiana.

Trematopora ? spiculata Miller.

1876. Trematopora spinulosa. Hall, Twenty-eighth Ann. Rep. New York State Museum (documentary edition), pl. xi, 11, 12. (Not Trematopora spinulosa. Hall, Pal. New York, II, 1852, p. 155, pl. xlA, 11*a*, *b*.)

1877. Trematopora spiculata. Miller, American Pal. Foss., edition 2, p. 245. (Proposed for T. spinulosa, preoccupied by Hall in 1852.)

1879. Trematopora spiculata. Hall, Twenty-eighth Ann. Rep. New York State Museum (Museum edition), p. 114, pl. xi, 11, 12.

1882. Trematopora spiculata. Hall, Eleventh Ann. Rep. Indiana Geol. Nat. Hist., p. 235, pl. x, 11, 12.

Niagara: Waldron, Indiana.

Trematopora solida Hall. See Homotrypa ? solida (Hall).

Trematopora sparsa Hall. See Diploclema sparsum (Hall).

Trematopora spinulosa Hall (1852). See Bythopora spinulosa (Hall).

Trematopora spinulosa Hall (1876). See Trematopora ? spiculata Miller.

Trematopora striata Hall.

1852. Trematopora striata. Hall, Pal. New York, II, p. 153, pl. xlA, 7*a–d*.

Niagara: Lockport, New York.

Obs.—This is probably some species of Eridotrypa or Bythopora, but with present knowledge can not be recognized.

Trematopora subimbricata Hall. See Diamesopora subimbricata (Hall).

Trematopora subquadrata Hall. See Orthopora subquadrata (Hall).

Trematopora (Orthopora) subquadrata Hall. See Orthopora subquadrata (Hall).

Trematopora ?? superba Billings.

1866. Trematopora superba. Billings, Catal. Sil. Foss. Anticosti, p. 93.

Clinton and Niagara: Cabots Head, Lake Huron.

Trematopora tortalinea Hall. See Orthopora tortalinea (Hall).

Trematopora (Orthopora) tortalinea Hall and Simpson. See Orthopora tortalinea (Hall).

Trematopora transversa Hall. See Orthopora transversa (Hall).

Trematopora (Orthopora ?) transversa Hall and Simpson. See Orthopora transversa (Hall).

Trematopora tuberculosa Hall.

1852. Trematopora tuberculosa. Hall, Pal. New York, II, p. 149, pl. xlA, 1*a–g*.

1883. Trematopora tuberculosa. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 259, pl. xiii, 2–2*b*.

1897. Trematopora tuberculosa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xix. 1–5.

Niagara: Lockport, New York.

Trematopora tubulosa Hall. See Diamesopora tubulosa (Hall).

Trematopora varia Hall. See Chilotrypa varia (Hall).

Trematopora variolata Hall. See Chilotrypa variolata (Hall).

Trematopora ?? vesiculosa Winchell.

1864. Trematopora vesiculosa. Winchell, Proc. Acad. Nat. Sci. Philadelphia, p. 3.

1865. Trematopora ? vesiculosa. Winchell, Proc. Acad. Nat. Sci. Philadelphia, p. 112.

Trematopora ?? vesiculosa Winchell—Continued.

1870. Trematopora? vesiculosa. Winchell, Proc. American Phil. Soc., XI, p. 247.
Burlington: Burlington, Iowa.
Waverly: Sciotoville, Ohio; Hillsdale, Michigan.

Trematopora whitfieldi Ulrich.

1883. Trematopora whitfieldi. Ulrich, Jour. Cincinnati Soc. Nat. Hist., VI, p. 262, pl. xiii, 4, 4*a*.
Niagara: Waldron, Indiana.

TRIGONODICTYA Ulrich. Genotype: Pachydictya conciliatrix Ulrich.

1893. Trigonodictya. Ulrich, Geol. Minnesota, III, p. 160.

Trigonodictya conciliatrix (Ulrich).

1886. Pachydictya conciliatrix. Ulrich, Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota, p. 76.
1893. Trigonodictya conciliatrix. Ulrich, Geol. Minnesota, III, p. 160, pl. ix, 11, 12, pl. x, 15–20.
Trenton (Black River): Cannon Falls, Minnesota.

Trigonodictya eatonensis Ulrich.

1893. Trigonodictya eatonensis. Ulrich, Geol. Minnesota, III, p. 160.
1895. Trigonodictya eatonensis. Foerste, Geol. Sur. Ohio, VII, p. 599.
Clinton: Eaton, Ohio.

TROPIDOPORA Hall and Simpson. Genotype: Tropidopora nana Hall.

1887. Tropidopora. Hall and Simpson, Pal. New York, VI, p. xv.
1889. Tropidopora. Miller, North American Geol. Pal., p. 329.
1897. Tropidopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 553.

Tropidopora nana Hall.

1886. Tropidopora nana. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. xxv, 25, 26.
1887. Tropidopora nana. Hall and Simpson, Pal. New York, VI, p. 71, pl. xxv, 25, 26.
1897. Tropidopora nana. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. xvi, 1, 2.
Upper Helderberg: Onondaga Valley, New York.

Tuberculopora Ringueberg. Bryozoan? Genotype: Tuberculopora inflata Ringueberg.

1886. Tuberculopora. Ringueberg, Bull. Buffalo Soc. Nat. Sci., V, p. 21.

Tuberculopora inflata Ringueberg. Not recognizable.

1886. Tuberculopora inflata. Ringueberg, Bull. Buffalo Soc. Nat. Sci., V, p. 21, pl. ii, 18.
Niagara: Lockport, New York.

UNITRYPA Hall. Genotype: Fenestella (Hemitrypa) lata Hall.

1885. Unitrypa. Hall, Rep. State Geologist New York for the year 1884, p. 36.
1886. Unitrypa. Ulrich, Contr. American Pal., I, p. 4.
1887. Unitrypa. Hall and Simpson, Pal. New York, VI, p. xxiii.
1889. Unitrypa. Miller, North American Geol. Pal., p. 329.
1890. Unitrypa. Ulrich, Geol. Sur. Illinois, VIII, p. 396.
1895. Unitrypa. Simpson, Thirteenth Ann. Rep. State Geologist New York for the year 1893, pp. 689, 708, 726; Forty-seventh Ann. Rep. New York State Museum, pp. 883, 902, 920.

UNITRYPA Hall—Continued.

1897. Unitrypa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pp. 508, 520.

1899. Unitrypa. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 161.

Unitrypa acaulis (Hall).

1883. Fenestella (Hemitrypa) acaulis. Hall, Trans. Albany Institute, X, p. 175 (abstract, 1881, p. 33).

1886. Fenestella (Unitrypa) acaulis. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. li, 1–6.

1887. Fenestella (Unitrypa) acaulis. Hall and Simpson, Pal. New York, VI, p. 131, pl. li, 1–6.

1886. Unitrypa conferta. Ulrich, Contr. American Pal., I, p. 17, pl. i, 8, *8a*.

1887. Fenestella (Unitrypa) projecta. Hall and Simpson, Pal. New York, VI, p. 132.

1888. Fenestella (Unitrypa) projecta. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. xiv, 6–8; Forty-first Ann. Rep. New York State Museum, pl. xiv, 6–8.

Hamilton: Falls of the Ohio.

Unitrypa acaulis-inclinis (Hall and Simpson).

1887. Fenestella (Unitrypa) acaulis var. inclinis. Hall and Simpson, Pal. New York, VI, p. 132.

Hamilton: Falls of the Ohio.

Obs. The differences between this form and Unitrypa acaulis are scarcely of varietal importance.

Unitrypa acclivis (Hall and Simpson).

1887. Fenestella (Unitrypa) acclivis. Hall and Simpson, Pal. New York, VI, p. 138, pl. lii, 16–23.

1897. Unitrypa acclivis. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. v, 15.

Upper Helderberg: Walpole, Ontario.

Unitrypa anonyma (Hall).

1883. Fenestella (Hemitrypa) anonyma. Hall, Trans. Albany Institute, X, p. 176 (abstract, 1881, p. 34).

Hamilton: Falls of the Ohio.

Unitrypa conferta Ulrich. See Unitrypa acaulis (Hall).

Unitrypa connexa Simpson.

1897. Unitrypa connexa Hall. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, pl. v, 12–14.

Obs. Simpson ascribes this species to Hall, but we have been unable to find it in any of Hall's works. The species apparently has not yet been described; until described the name is invalid.

Unitrypa ? elegantissima (Hall).

1883. Fenestella (Hemitrypa) elegantissima. Hall, Trans. Albany Institute, X, p. 177 (abstract, 1881, p. 35).

1886. Fenestella (Unitrypa) elegantissima. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. liii, 12–17.

1887. Fenestella (Unitrypa) elegantissima. Hall and Simpson, Pal. New York, VI, p. 140, p. liii, 12–17.

Upper Helderberg: Walpole, Ontario.

Unitrypa fastigata (Hall).

1883. Fenestella (Hemitrypa) fastigata. Hall, Trans. Albany Institute, X, p. 178 (abstract, 1881, p. 36).

1887. Fenestella (Unitrypa) fastigata. Hall and Simpson, Pal. New York, VI, p. 141, pl. liv. 1–6.

1897. Unitrypa fastigata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 54 (p. 508), pl. vi, 1–6.

Hamilton: Falls of the Ohio.

Unitrypa ficticia (Hall and Simpson).

1887. Fenestella (Unitrypa) ficticia. Hall and Simpson, Pal. New York, VI, p. 137. pl. lii, 11–15.

Upper Helderberg: Walpole, Ontario.

Unitrypa lata (Hall).

1883. Fenestella (Hemitrypa) lata. Hall, Trans. Albany Institute, X, p. 176 (abstract, 1881, p. 34).

1885. Unitrypa spatiosa (in error). Hall, Rep. State Geologist New York for the year 1884, pl. ii, 12.

1887. Fenestella (Unitrypa) lata. Hall and Simpson, Pal. New York, VI, p. 136, pl. lii, 1–10.

1897. Unitrypa lata. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 55–57 (pp. 508–509), pl. v, 16–19.

Upper Helderberg: Walpole, Ontario.

Unitrypa nana (Hall and Simpson).

1887. Fenestella (Unitrypa) nana. Hall and Simpson, Pal. New York, VI, p. 133.

Upper Helderberg: Walpole, Ontario.

Unitrypa nervia (Hall).

1874. Fenestella Nervia. Hall, Twenty-sixth Ann. Rep. New York State Museum, p. 93.

1879. Fenestella (Hemitrypa) Nervia. Hall, Thirty-second Ann. Rep. New York State Museum, p. 173 (reprint, 1880, p. 35).

1883. Fenestella (Hemitrypa) Nervia. Hall, Rep. State Geologist New York for the year 1882, pl. xxii, 1–6, ? 9, 10.

1887. Fenestella (Unitrypa) Nervia. Hall and Simpson, Pal. New York, VI, p. 55, pl. xxii, 1–3, 6, ? 9, 10.

1874. Hemitrypa prima. Hall, Twenty-sixth Ann. Rep. New York State Museum, p. 98.

Lower Helderberg: Clarksville and Schoharie, New York.

Unitrypa nervia-constricta (Hall).

1879. Fenestella (Hemitrypa) Nervia var. constricta. Hall, Thirty-second Ann. Rep. New York State Museum, p. 174 (reprint, 1880, p. 36).

1883. Fenestella (Hemitrypa) Nervia var. constricta. Hall, Rep. State Geologist New York for the year 1882, pl. xxii, 11, 12.

1887. Fenestella (Unitrypa) Nervia var. constricta. Hall and Simpson, Pal. New York, VI, p. 56, pl. xxii, 11, 12.

Lower Helderberg: Clarksville, New York.

Unitrypa pernodosa (Hall).

1883. Fenestella (Hemitrypa) pernodosa. Hall, Trans. Albany Institute, X, p. 176 (abstract, 1881, p. 35).

1886. Fenestella (Unitrypa) pernodosa. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. liii, 1–11.

Unitrypa pernodosa (Hall)—Continued.

1887. Fenestella (Unitrypa) pernodosa. Hall and Simpson, Pal. New York, VI, p. 139, pl. liii, 1–11.
Upper Helderberg: Walpole, Ontario.

Unitrypa præcursor (Hall).

1874. Fenestella præcursor. Hall, Twenty-sixth Ann. Rep. New York State Museum, p. 94.
1879. Fenestella præcursor. Hall, Thirty-second Ann. Rep. New York State Museum, p. 171 (reprint, 1880, p. 33).
1883. Fenestella præcursor. Hall, Rep. State Geologist New York for the year 1882, pl. xxi, 14–18.
1885. Fenestella (Unitrypa) præcursor. Hall, Rep. State Geologist New York for the year 1884, pl. ii, 10.
1887. Fenestella (Unitrypa) præcursor. Hall and Simpson, Pal. New York, VI, p. 54, pl. xxi, 14–18.
Lower Helderberg: Catskill and Clarksville, New York.

Unitrypa quadrula (Hall).

1879. Fenestella quadrula. Hall, Thirty-second Ann. Rep. New York State Museum, p. 172 (reprint, 1880, p. 34).
1883. Fenestella quadrula. Hall, Rep. State Geologist New York for the year 1882, pl. xxi, 19–22.
1887. Fenestella quadrula. Hall and Simpson, Pal. New York, VI, p. 53, pl. xxi, 19–22.
1890. Unitrypa quadrula. Ulrich, Geol. Sur. Illinois, VIII, p. 534.
Lower Helderberg: Clarksville, New York.

Unitrypa retrorsa Ulrich. See Unitrypa tegulata (Hall).

Unitrypa scalaris (Hall).

1884. Fenestella scalaris. Hall, Thirty-sixth Ann. Rep. New York State Museum, p. 66.
1887. Fenestella (Unitrypa) scalaris. Hall, Sixth Ann. Rep. State Geologist New York for the year 1886, p. 60.
1888. Fenestella (Unitrypa) scalaris. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. xi, 1–11; Forty-first Ann. Rep. New York State Museum, pl. xi, 1–11.
1899. Unitrypa scalaris. Grabau, Bull. Buffalo Soc. Nat. Sci., VI, p. 162, fig. 51.
Hamilton: Bellona and other localities in New York; West Williams, Ontario.

Unitrypa spatiosa Hall. See Unitrypa lata (Hall).

Unitrypa substriata (Hall).

1883. Fenestella (Hemitrypa) substriata. Hall, Trans. Albany Institute, X, p. 177 (abstract, 1881, p. 35).
Upper Helderberg: Falkirk, New York.

Unitrypa tegulata (Hall).

1883. Fenestella (Hemitrypa) tegulata. Hall, Trans. Albany Institute, X, p. 176 (abstract, 1881, p. 34).
1886. Fenestella (Unitrypa) tegulata. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. li, 15–23.
1887. Fenestella (Unitrypa) tegulata. Hall and Simpson, Pal. New York, VI, p. 135, pl. li, 15–23.
1883. Fenestella (Hemitrypa) stipata. Hall, Trans. Albany Institute, X, p. 175 (abstract, 1881, p. 34).

Unitrypa tegulata (Hall)—Continued.

1886. Fenestella (Unitrypa) stipata. Hall, Fifth Ann. Rep. State Geologist New York for the year 1885, pl. li, 7–14.

1887. Fenestella (Unitrypa) stipata. Hall and Simpson, Pal. New York, VI, p. 134, pl. li, 7–14.

1886. Unitrypa retrorsa. Ulrich, Contr. American Pal., I, p. 15, pl. i, 7–7*c*.

1887. Fenestella (Unitrypa) transversa. Hall and Simpson, Pal. New York, VI, p. 132.

1888. Fenestella (Unitrypa) transversa. Hall, Seventh Ann. Rep. State Geologist New York for the year 1887, pl. xiv, 9; Forty-first Ann. Rep. New York State Museum, pl. xiv, 9.

Hamilton: Falls of the Ohio.

VINELLA Ulrich. Genotype: Vinella repens Ulrich.

1890. Vinella. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 173.

1892. Vinella. Miller, North American Geol. Pal., First Appendix, p. 685.

1893. Vinella. Ulrich, Geol. Minnesota, III, p. 112.

1897. Vinella. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 604.

Vinella radialis Ulrich.

1893. Vinella radialis. Ulrich, Geol. Minnesota, III, p. 113, fig. 8*b*.

Cincinnati (Lorraine): Cincinnati, Ohio.

Vinella radiciformis-conferta Ulrich.

1893. Vinella radiciformis var. conferta. Ulrich, Geol. Minnesota, III, p. 113, fig. 8*c*, *d*.

Niagara: Waldron, Indiana.

Vinella repens Ulrich.

1890. Vinella repens. Ulrich, Jour. Cincinnati Soc. Nat. Hist., XII, p. 174. fig. 1.

1893. Vinella repens. Ulrich, Geol. Minnesota, III, p. 114, pl. i, 1–5.

1897. Vinella repens. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, fig. 222 (p. 604).

Trenton (Black River): St. Paul, Minnesota.

WORTHENOPORA Ulrich. Genotype: Worthenopora spinosa Ulrich.

1890. Worthenopora. Geol. Sur. Illinois, VIII, p. 403.

1889. Worthenopora. (Ulrich, in press), Miller, North American Geol. Pal., p. 330.

1897. Worthenopora. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, p. 602.

Worthenopora spatulata (Prout).

1859. Flustra spatulata. Prout, Trans. St. Louis Acad. Sci., I, p. 446, pl. xvii, 2–2*c*.

1890. Worthenopora spatulata. Ulrich, Geol. Sur. Illinois, VIII, p. 670, pl. lxviii, 2, 2*a*.

1894. Worthenopora spatulata. Keyes, Missouri Geol. Sur., V, p. 36.

Warsaw: Warsaw, Illinois; Barretts Station, Missouri.

Worthenopora spinosa Ulrich.

1890. Worthenopora spinosa. Ulrich, Geol. Sur. Illinois, VIII, p. 669, pl. lxviii, 1–1*g*.

1894. Worthenopora spinosa. Keyes, Missouri Geol. Sur., V, p. 36.

1897. Worthenopora spinosa. Simpson, Fourteenth Ann. Rep. State Geologist New York for the year 1894, figs. 217–219 (p. 603).

Keokuk: Warsaw and Nauvoo, Illinois; Keokuk and Bentonsport, Iowa.

INDEX OF SPECIFIC NAMES.

abrupta—Batostomella.
—Monotrypella.
abruptus (Chætetes)—Monotrypella.
acaulis —Unitrypa.
acaulis-inclinis—Unitrypa.
acclivis—Unitrypa.
acervulosa—Fistulipora.
—Leptotrypa.
acmeum—Semicoscinium.
aculeata—Polypora.
aculeolata—Cœlocaulis.
acuminata—Escharopora.
acuta—Pachydictya.
—Ptilopora.
(Ptilodictya)—Pachydictya.
(Stictopora)—Pachydictya.
acuticosta—Fenestella.
adherens—Stenopora.
adnata—Hederella.
—Reteporidra.
(Fenestella)—Reteporidra.
(Nicholsonia)—Hederella.
adornata—Fenestella.
adraste—Fenestella.
æqualis—Fenestella.
—Monotrypella.
(Monticulipora)—Monotrypella.
aequidistans—Chætetes.
æsyle—Fenestella.
affinis—Heterotrypa.
—Prasopora.
(Amplexopora)—Heterotrypa.
(Monticulipora)—Heterotrypa.
agellus—Ceramopora confluens.
albida—Fenestella.
albida-richfieldensis—Fenestella richfieldensis.
albionensis—Polypora.
alcicornis—Bythopora.
—Clathropora.
alcyone—Pachydictya.
alternata—Fistulipora.
—Hederella.
—Helopora.
—Nematopora.
—Stictopora.
(Ceramopora)—Cœloclema.
alternata (Lichenalia)—Fistulipora.
(Monticulipora)—Cœloclema.
(Stomatopora)—Hederella.
(Trematopora)—Acanthoclema.
alternatum—Acanthoclema.
—Cœloclema.
althæa—Fenestella.
alveata (Lichenalia)—Buskopora bistriata.
ambigua—Loculipora.
—Sagenella.
(Fenestella)—Loculipora.
(Isotrypa)—Loculipora.
americana—Acanthocladia.
—Cystodictya.
—Stenopora.
—Trematopora.
americana-varsoviensis—Stenopora.
ampla—Callopora.
amplectens—Monotrypa.
(Paleschara)—Leptotrypa quadrangularis.
amplexa—Streblotrypa.
anastomosa—Omniretepora.
anceps—Acanthocladia americana.
andrewsi—Callopora.
angulare—Arthroclema.
angularis—Callopora.
—Cystodictya.
—Escharopora.
—Stenopora.
—Stictoporella.
(Stictopora)—Cystodictya.
angularis-intermedia—Stictoporella.
angulata—Fenestella.
—Nicholsonia.
—Phylloporina.
(Retepora)—Phylloporina.
(Subretepora)—Phylloporina.
angusta—Cystodictya.
—Ptilodictya.
(Escharopora)—Ptilodictya.
angustata—Fenestella.
—Rhombopora.
annulata—Trematella.
annulata-pronaspina—Trematella annulata.

annulifera—Lioclemella.
anonyma—Unitrypa.
antheloidea—Stellipora.
(Constellaria) — Constellaria constellata.
(Hellipora)—Constellaria constellata.
(Stellipora)—Constellaria constellata.
anticorum—Gorgonia.
antiqua (Ptilodictya)—Eurydictya multipora.
aperta—Fenestella.
—Meekopora.
appressa—Dekayia.
—Eridotrypa.
(Monotrypella)—Eridotrypa.
approximata—Meekopora.
—Polypora.
—Scalaripora.
(Helopora) — Bythopora parvula.
approximatus (Chætetes)—Callopora dalei.
(Monticulipora)—Callopora dalei.
arachnoidea—Stomatopora.
araneum—Lioclema.
arborea—Monticulipora.
—Trematella.
(Trematopora)—Trematella.
arbuscula—Homotrypa.
arbuscula—Monotrypella.
arbusculus (Chætetes)—Monotrypella.
archimedes (Retepora)—Archimedes wortheni.
archimediformis (Helicopora)—Archimedes laxus.
arcolata (Monticulipora) — Aspidopora areolata.
arctipora—Bythopora.
areolata—Aspidopora.
—Spatiopora.
arguta—Pachydictya crassa.
arkonensis—Fenestella.
—Polypora.
armata—Helopora.
—Rhombopora.
armatum—Arthroclema.
arta—Polypora.
ascuta—Thamnicella.
aspectans—Polypora.
aspectus (Fenestella)—Polypora aspectans.
aspera—Batostomella.
—Dekayia.
—Hemitrypa.
—Phyllopora.
—Phylloporina.
—Spatiopora.
(Callopora)—Lioclema.
(Gorgonia)—Phylloporina.
(Lichenotrypa)—Lichenotrypa longispina.
(Monticulipora)—Spatiopora.
(Monticulipora (Dekayia))—Dekayia.
(Paleschara) — Paleschara maculata.
(Subretepora)—Phylloporina.
(Trematopora)—Batostomella.
asperato-striata—Phylloporina.
asperum—Lioclema.
asperrima (Rhombopora)—Rhombopora asperula.
asperula—Petigopora.
—Rhombopora.
(Monticulipora)—Petigopora.
assita—Fenestella.
asteria—Fistulipora.
asterias (Coscinium)—Fistulipora.
astrica—Fistulipora.
astricta—Fistulipora astrica.
attenuata—Rhombopora.
attrita (Dekayia)—Dekayia aspera.
attritus (Chætetes)—Dekayia aspera.
auloporoides—Proboscina.
banyana—Fenestella.
barrandei—Heterotrypa.
barrisi—Euspilopora.
basalis—Intrapora.
—Rhinidictya.
(Stictopora)—Rhinidictya.
(Stictoporella)—Intrapora.
beani—Paleschara.
bellistriata—Fenestella.
bellula—Helopora.
—Pinnatopora.
biarmica (Polypora)—Polypora biseriata.
bicornis—Fenestella.
bifaria (Isotrypa)—Isotrypa conjunctiva.
bifolia—Heliotrypa.
bifoliata—Ptilodictya nebulosa.
bifurca—Ptiloporella.
bifurcata—Arthropora.
—Cystodictya.
—Diploporaria.
—Fenestella.

bifurcata—Pachydictya.
(Eschara)—Pachydictya.
(Stictopora)—Cystodictya.
bifurcata-instabilis—Pachydictya.
bigeneris—Fenestella perplexa.
biimbricatum—Semicoscinium.
bilateralis—Goniotrypa.
—Paleschara.
billingsi—Arthroclema.
—Monticulipora.
biperforata—Fenestrapora.
(Tectulipora)—Loculipora loculata.
bipunctata (Callopora)—Streblotrypa.
(Ptilodictya)—Phænopora expansa.
biordo—Hemitrypa.
biserialis—Diploporaria.
—Hemitrypa.
—Septopora.
(Fenestella)—Hemitrypa.
(Synocladia)—Septopora.
biserialis-exilis—Hemitrypa.
biserialis-gracilis—Septopora.
biserialis-nervata—Septopora.
biseriata—Fenestella.
biserrulatum—Semicoscinium.
bispinulata—Orthopora.
(Callopora)—Orthopora.
(Trematopora)—Streblotrypa.
bispinulatum (Acanthoclema)—Orthopora.
bistigmata—Semiopora.
bistriata—Buskopora.
blandida—Polypora.
briarea (Monticulipora)—Eridotrypa.
(Monotrypella)—Eridotrypa.
briareus—Eridotrypa.
—Escharopora.
(Chætetes)—Eridotrypa.
(Ptilodictya)—Escharopora.
brevilinea (Fenestella)—Semicoscinium exornatum.
brevisulcata—Polypora.
bristolensis (Stictopora)—Cystodictya bifurcata.
bulbosa—Stenopora.
bullata—Fistulipora.
burlingtonensis—Fenestella.
—Polypora.
calceola—Leptotrypa.
calhounensis—Eurydictya.
calloporoides—Trematopora.
callosa—Homotrypa.
calycula—Aspidopora.
calyculus (Chætetes)—Aspidopora.
camerata—Chilotrypa.
canadense—Batostoma.
canadensis—Fistulipora.
—Hederella.
—Ptilodictya.
—Scalaripora.
—Stomatopora.
(Alecto)—Hederella.
(Amplexopora)—Batostoma.
(Aulopora)—Hederella.
(Nicholsonia)—Hederella.
canaliculata—Orthopora.
cannonensis—Monticulipora.
carbaseoides—Flustra.
carbonaria—Cystodictya.
—Fistulipora.
—Stenopora.
(Ptilodictya)—Cystodictya.
carbonaria-conferta—Stenopora.
carbonaria-maculosa—Stenopora.
carbonarius (Chætetes)—Stenopora.
carinata—Lichenalia.
—Orthopora.
—Pinnatopora.
(Clathropora)—Coscinium cribriforme.
(Coscinotrypa)—Coscinium cribriforme.
(Glauconome)—Pinnatopora.
(Trematopora)—Orthopora.
carinella—Polypora.
cavernosa—Fenestella.
(Lichenotrypa)—Lichenotrypa longispina.
cellulosum—Lioclema.
celsipora—Polypora.
celsipora-minima—Polypora.
celsipora-minor—Polypora.
cervicornis—Callopora.
cestriensis—Fenestella.
—Polypora.
—Septopora.
—Stenopora.
(Septopora) (M. & W.)—Septopora subquadrans.
cincinnatiensis—Monticulipora.
(Callopora)—Lioclema occidens.
(Chætetes)—Monticulipora.
(Ptilodictya)—Arthropora shafferi-cleavelandi.

cinctosum—Mitoclema.
cinctura (Lyropora)—Reteporidra cinctuta.
cinctuta—Reteporidra.
cingulata—Amplexopora.
—Fenestella.
—Tæniodictya.
circe—Helopora.
circincta—Selenopora.
circularis—Calloporella.
circumstata—Loculipora.
cirrhosa—Hederella.
cisseis—Drymotrypa.
clathrata—Fenestella.
—Phylloporina.
(Intricaria)—Phylloporina.
(Subretepora)—Phylloporina.
clathratula (Stictopora)—Escharopora pavonia.
clathratulus (Chætetes)—Escharopora pavonia.
clausa—Meekopora.
clavacoidea—Leptotrypa.
claviformis—Leptotrypa.
—Stictoporina.
(Stictopora)—Stictoporina.
(Trematopora)—Stictoporina.
clavis—Leptotrypa.
cleavelandi—Monticulipora.
cleia—Fenestella.
cleis—Semicoscinium.
clintonensis—Monticulipora.
(Clathropora)—Clathropora frondosa-clintonensis.
(Ptilodictya)—Ptilodictya nodosa.
clintonii—Retepora.
clivulata—Eridopora.
clypeiformis—Ceramopora.
coalescens—Chilotrypa.
—Reteporina.
(Fenestella)—Reteporina.
(Trematopora)—Chilotrypa.
colliculata—Fistulipora.
—Monotrypa.
(Lichenalia)—Fistulipora.
colliculatus (Chætetes)—Monotrypa.
collina—Cyclotrypa.
columellata—Hemitrypa.
columnaris—Chætetes.
communis—Archimedes.
—Cyclotrypa.
(Diamesopora)—Cœloclema concentricum.
communis (Fistulipora)—Cyclotrypa.
(Monticulipora)—Callopora onealli-communis.
compacta—Fenestralia.
—Polypora.
(Fenestella)—Polypora.
compactus—Archimedes.
complanata—Polypora.
complexa—Selenopora.
complexata—Selenopora complexa.
compressa—Fenestella.
—Fistulipora.
—Peronopora.
—Petalotrypa.
—Polypora.
(Fenestella) (Hall)—Polypora.
(Monticulipora)—Peronopora.
(Stictopora)—Phænopora magna.
compressa-nododorsalis—Fenestella nododorsalis.
compressus (Chætetes)—Peronopora.
concava—Helopora.
concentrica—Cystodictya.
—Lichenalia.
—Paleschara.
(Ceramopora)—Cœloclema.
(Eschara)—Cystodictya.
(Lichenotrypa)—Fistulipora neglecta.
concentrica-maculata—Fistulipora neglecta-maculata.
concentrica-parvula—Fistulipora halli.
concentricum—Cœloclema.
conciliatrix—Trigonodictya.
conferta—Hederella.
—Nematopora.
—Pinnatopora.
—Polypora.
(Fenestella)—Polypora.
(Ptilionella)—Hederella.
(Unitrypa)—Unitrypa acaulis.
confertipora (Fenestella)—Ptiloporella bifurca.
(Fistulipora)—Lioclema.
(Fistuliporina)—Lioclema.
(Thallostigma)—Lioclema.
confertiporum—Lioclema.
confluens—Acanthoclema.
—Ceramopora.
—Escharopora.
—Homotrypa.
(Monotrypella)—Homotrypa.
(Rhombopora)—Acanthoclema.

confusa—Fistulipora.
—Proboscina.
(Alecto)—Proboscina.
(Lichenalia)—Fistulipora.
confusa (Stomatopora)—Proboscina.
conica—Ptiloporina.
conjunctiva—Isotrypa.
conjunctus—Arthrostylus.
connexa—Unitrypa.
conoidea—Prasopora.
conradi—Fenestella.
consimilis—Isotrypa.
—Monotrypella.
(Chætetes)—Monotrypella.
(Fenestella)—Isotrypa.
(Monticulipora)—Monticulipora lævis-consimilis.
(Tectuliporella)—Isotrypa.
constellata—Constellaria.
—Phænopora.
(Ceriopora)—Constellaria.
constellata-plana—Constellaria.
constellata-prominens—Constellaria.
constellatus (Chætetes)—Constellaria.
constricta—Chilotrypa.
—Fistulipora.
—Phacelopora.
(Diamesopora)—Chilotrypa.
(Fistuliporella)—Fistulipora.
(Lichenalia)—Fistulipora.
(Trematopora)—Chilotrypa.
contexta—Homotrypella.
contigua—Prasopora.
conulata—Fistulipora.
cornuta—Fistulipora.
cornutum—Arthroclema.
coronis—Semicoscinium.
corrugata—Fistulipora.
cortex—Leptotrypa.
corticans—Spatiopora.
corticata—Fenestella.
corticosa—Eridotrypa.
—Phylloporina.
—Polypora.
(Chætetes)—Eridotrypa.
(Phyllopora)—Phylloporina.
(Subretepora)—Phylloporina.
(Trematopora)—Eridotrypa.
cosciniformis—Coscinella.
crassa—Atactoporella.
—Fistulipora.
—Pachydictya.
—Polypora.
—Rhombopora.
crassa (Fistulipora) (Rom.)—Fistulipora romingeri.
(Lichenalia)—Fistulipora.
(Ptilodictya)—Pachydictya.
(Stictopora)—Pachydictya.
(Trematopora)—Fistulipora.
crassimuralis—Monotrypella.
crebripora—Fenestella.
—Trematopora.
crebriramus—Chætetes.
crenulata—Callopora.
(Cystodictya)—Cystodictya subrigida.
(Stictopora)—Cystodictya subrigida.
crebescens—Polypora.
crescens—Cystodictya.
cribriforme—Coscinium.
cribriformis-carinata (Coscinotrypa)—Coscinium cribriforme.
cribrosa—Fenestella.
—Hemitrypa.
—Stictoporella.
(Fenestella) (Hall)—Hemitrypa.
(Fenestella) (Nich.)—Fenestella nicholsoni.
crispata—Cystodictya gilberti.
cristata—Phractopora.
cristata-lineata—Phractopora cristata.
cruciformis (Ptilodictya)—Escharopora falciformis.
crustacea—Lichenalia.
crustulata (Monticulipora)—Chætetes.
crustulatus—Chætetes.
cultellata—Fistulipora.
(Fenestella)—Polypora shumardi.
(Lichenalia)—Fistulipora.
(Polypora)—Polypora shumardi.
cultrata—Fenestella.
cumulata—Monotrypa.
—Nicholsonella.
(Monticulipora)—Nicholsonella.
curtus—Arthrostylus.
curvata—Bactropora.
—Fenestella.
—Homotrypa.
—Pinnatopora.
(Monticulipora)—Homotrypa.
(Rhinopora)—Rhinopora verrucosa.
curvijunctura—Fenestella.

cyclops (Coscinium)—Clathropora intertexta.
cylindracea—Polypora.
—Ptilopora.
(Fenestella)—Polypora.
dalei—Callopora.
dalii (White)—Monticulipora.
(Monticulipora) (Hall)—Callopora ramosa.
davidsoni—Semicoscinium.
dawsoni—Homotrypa.
—Phylloporina.
(Monticulipora)—Homotrypa.
(Subretepora)—Phylloporina.
debilis—Trematopora.
decipiens—Batostoma.
—Lioclema.
—Peronopora.
—Rhombopora.
—Septopora.
(Chætetes)—Peronopora.
(Fistulipora)—Lioclema.
(Thallostigma)—Lioclema.
delicata—Fenestella.
—Petalotrypa.
delicatula—Bythopora.
—Fenestella.
—Nematopora.
—Septopora.
—Stomatopora.
(Hippothoa)—Stomatopora.
(Monticulipora)—Bythopora.
delicatula-tenuissima—Stomatopora.
delicatulus (Chætetes)—Bythopora.
dendrina—Bythopora.
densa—Monotrypella.
(Fistulipora)—Lioclema.
(Thallostigma)—Lioclema.
(Trematopora)—Monotrypella.
densus (Chætetes)—Monotrypella.
densum—Lioclema.
dentata—Buskopora.
denticulata—Eridopora.
—Streblotrypa.
(Lichenalia)—Eridopora.
(Pileotrypa)—Eridopora.
depressa—Fenestella.
dermata—Strotopora.
devonica—Dekayia.
—Discotrypa.
dichotoma—Diamesopora.
—Drymotrypa.
—Rhombopora.
(Hornera)—Thamniscus
dichotoma (Stictopora)—Tæniopora subcarinata.
(Subretepora)—Thamniscus.
dichotomus—Thamniscus.
dictyotum—Coscinium.
diffusa—Drymotrypa.
digitatum—Lioclema.
dilata—Fenestella.
(Prismopora)—Prismopora dilatata.
dilatata—Prismopora.
discoidea—Amplexopora.
—Mesotrypa.
—Proutella.
(Cyclopora)—Proutella.
(Leptotrypa)—Amplexopora.
(Monticulipora)—Amplexopora.
discoideus (Chætetes)—Amplexopora.
dispanda—Fenestella.
disparilis—Ptiloporina.
dispersa—Chilotrypa.
dissimilis—Paleschara.
distans—Archimedes.
—Fistulipora.
—Polypora.
(Fenestella)—Polypora.
(Lichenalia)—Fistulipora.
distensa—Fistulipora.
distincta—Ceramoporella.
—Polypora.
—Streblotrypa.
distorta (Escharina)—Rhinopora verrucosa.
divaricans—Thamniscus.
divaricata—Helopora.
—Thamnotrypa.
(Thamnopora)—Thamnotrypa.
divergens -Acanthoclema.
—Lyropora.
—Stictopora.
diversa—Callopora.
dubia—Diplotrypa.
(Hemitrypa)—Loculipora ambigua.
(Monticulipora)—Diplotrypa.
(Ptilodictya)—Arthropora shafferi-cleavelandi.
dumalis—Callopora.
dumosa—Stictoporella.
duogeneris—Tæniopora exigua.
dychei—Leptotrypa.
eatonensis—Trigonodictya.
eccentrica—Aspidopora.

echinata—Eridotrypa.
egenus—Chætetes.
ehrenbergi—Phyllopora.
elegans—Berenicea.
—Dichotrypa.
—Discotrypa.
—Fenestella.
—Glyptopora.
—Helopora.
—Pachydictya.
—Pinacotrypa.
(Chætetes)—Discotrypa.
(Coscinium)—Glyptopora.
(Fistulipora)—Pinacotrypa.
(Monticulipora)—Discotrypa.
(Polypora)—Polypora idothea.
(Sagenella)—Berenicea.
elegantissima—Unitrypa.
elegantula—Aspidopora.
—Callopora.
—Coscinella.
—Intrapora.
—Rhombopora.
—Stictopora.
(Anisotrypa)—Rhombopora.
elevatipora—Fenestella.
elongata—Orthopora.
—Polypora.
(Fenestella)—Polypora.
(Trematopora)—Orthopora.
emacerata—Dicranopora.
emarcescens—Ptilodictya expansa-emarcescens.
emaciata—Fenestella.
—Pachydictya.
—Stenopora.
ensiformis—Phænopora.
epidermata—Bythotrypa.
erecta (Crateripora)—Arthropora shafferi.
erectipora—Fenestella.
eriense—Semicoscinium.
eriensis—Fistulipora.
escharense—Coscinium.
eudora—Polypora.
(Fenestella)—Polypora.
(Fenestella) (Hall, 1883)—Polypora stricta.
everetti—Pachydictya.
excellens—Fistulipora.
—Phænopora.
(Ptilodictya)—Phænopora.
(Stictoporella)—Phænopora.
exigua—Eridotrypa.
exigua—Fenestella.
—Protocrisina.
—Rhinidictya.
—Rhombopora.
—Stictoporella.
—Tæniopora.
exilis—Homotrypa.
—Rhombopora.
(Stenopora)—Rhombopora.
eximia—Fenestella.
—Meekopora.
exornatum—Semicoscinium.
expansa—Ceramopora.
—Phænopora.
—Ptilodictya.
(Alveolites)—Ceramopora.
(Ptilodictya)—Phænopora.
expansa-emarcescens—Ptilodictya.
expansus—Chætetes.
expatiata—Cyclopora.
—Dichotrypa.
explanata—Ceramopora.
—Phænopora.
explicans—Ptilodictya.
exsul—Lioclema.
facula—Sceptropora.
falcata—Limaria.
falciformis—Escharopora.
falesi—Monticulipora.
famelica—Pachydictya.
farctus (Ptilodictya)—Pachydictya.
fasciculata—Clonopora.
fastigata—Unitrypa.
fastuosa—Polypora.
favosa—Hemitrypa.
fenestelliformis—Pachydictya.
fenestelliformis-corticula—Pachydictya.
fenestrata—Phylloporina.
—Rhinidictya.
(Retepora)—Drymotrypa.
(Stictopora)—Rhinidictya.
(Sulcopora)—Rhinidictya.
(Subretepora)—Phylloporina.
fertile—Batostoma.
fertile-circulare—Batostoma.
fibrosa—Stenopora.
fibrosus—Nemataxis.
ficticia—Unitrypa.
fidelis—Rhinidictya.
filiasus—Amplexopora filiosa.
filiosa—Amplexopora.
filiformis—Fenestella.
—Hederella.
(Aulopora)—Hederella.

filistriata—Fenestella.
filitexta—Fenestella.
fimbriata—Pachydictya.
—Phænopora.
(Ptilodictya)—Phænopora.
firma—Pachydictya.
fischeri—Constellaria.
fistulata—Polypora.
—Anisotrypa.
fistulosa (Callopora)—Lioclema cellulosum.
flabellaris—Homotrypa.
flabellata—Diastoporina.
—Stictoporella.
(Chiloporella)—Chiloporella nicholsoni.
(Clathropora)—Stictoporella.
(Fistulipora)—Chiloporella nicholsoni.
flabelliformis—Polypora.
flabellum—Dichotrypa.
flagellum—Ptilodictya.
flexuosa—Pinnatopora.
—Retepora.
—Reteporina.
—Stictoporella.
(Fenestella)—Reteporina.
(Ptilodictya)—Stictoporella.
fletcheri—Dekayella ulrichi.
fletscheri—Dekayella ulrichi.
florida (Callopora)—Lioclema.
(Constellaria)—Constellaria constellata.
florida-plana—Constellaria constellata-plana.
florida-prominens—Constellaria constellata-prominens.
floridum—Lioclema.
foliacea—Fistulipora.
—Meekopora.
—Retepora.
(Ceramopora)—Meekopora.
(Lichenalia)—Fistulipora.
foliata—Dichotrypa.
—Fenestella.
—Pachydictya.
(Paleschara)—Ptilodictya nebulosa.
foliatum—Lioclema.
foordi—Fistulipora.
formosa—Nematopora.
foveolata—Strotopora.
fungia—Cyclopora.
funicula—Fenestella.
furcatus—Chætetes.
furcillatus—Thamniscus.
fusiforme—Ascodictyon.
fusiformis—Lioclemella.
(Chætetes)—Lioclemella.
(Monticulipora)—Lioclemella subfusiformis.
fustiformis—Sceptropora.
fragilis—Dicranopora.
—Helopora.
—Nematopora.
—Trematopora.
(Ptilodictya)—Dicranopora.
(Stictopora)—Dicranopora.
fragilis-acadiensis—Helopora.
frequens—Fenestella.
frondifera—Stictoporella.
frondosa—Ceramophylla.
—Clathropora.
—Heterotrypa.
—Phyllodictya.
—Proboscina.
—Tæniodictya.
(Alecto)—Proboscina.
(Aulopora)—Proboscina.
(Monticulipora)—Heterotrypa.
(Monticulipora) (Nich., J. & J.)—Peronopora decipiens.
(Rhinopora)—Rhinopora verrucosa.
(Stomatopora)—Proboscina.
frondosa-clintonensis—Clathropora.
frondosus (Chætetes)—Heterotrypa.
(Chætetes) (Nich.)—Peronopora decipiens.
frondosus limatus (Chætetes)—Heterotrypa frondosa.
fruticellus—Thamniscus.
fruticosa—Acanthocladia.
—Stictopora.
(Bythopora)—Bythopora dendrina.
(Monotrypa)—Chætetes.
fruticosus (Hamilton)—Chætetes.
(Lower Helderberg)—Monotrypella arbuscula.
furcatus—Chætetes.
gelasinosa—Homotrypa.
geniculata—Callotrypa.
—Cystopora.
(Callopora)—Callotrypa.
geometrica—Fistulipora.
gigantea—Pachydictya.
—Ptilodictya.

gigantea (Heterodictya)—Ptilodictya.
gilberti—Cystodictya.
gladiola—Ptilodictya.
glomerata—Stictopora.
    —Trematella.
    (Trematopora)—Trematella.
goodhuensis—Callopora.
gracilis—Bythopora.
    —Clathropora.
    —Phylloporina.
    —Polypora.
    —Rhombopora.
    (Batostomella)—Bythopora.
    (Chætetes)—Bythopora.
    (Homotrypella)—Bythopora.
    (Monticulipora)—Bythopora.
    (Retepora)—Phylloporina.
    (Subretepora)—Phylloporina.
gracillimum—Lioclema.
grahami—Arthropora shafferi-cleavelandi.
graminifolia—Stictopora.
granatula—Stictopora.
grandis—Archimedes.
    —Dichotrypa.
    —Evactinopora.
    —Prasopora.
    —Rhinidictya.
    (Monticulipora)—Prasopora.
granifera—Fistulipora.
    —Orthopora.
    —Stictopora.
    (Fenestella)—Semicoscinium.
    (Lichenalia)—Fistulipora.
    (Pileotrypa)—Fistulipora.
    (Trematopora)—Orthopora.
graniferum—Semicoscinium.
granilinea—Orthopora.
    —Polypora.
    (Fenestella)—Polypora.
    (Trematopora)—Orthopora.
granistriata—Bactropora.
    —Phylloporina.
    (Trematopora)—Bactropora.
granosa—Nematopora.
granosus—Cœloconus.
granulata—Trematopora.
granulifera—Batostomella.
    —Homotrypella.
    (Batostomella)—Homotrypella.
    (Monticulipora)—Homotrypella.
granulifera (Rhombopora)—Batostomella.
    (Trematopora)—Batostomella.
granuliferus (Chætetes)—Homotrypella.
granulosa—Ceramoporella.
    —Dicranopora.
    —Fenestella.
    (Ptilodictya)—Rhinidictya.
    (Rhinidictya)—Dicranopora.
granulosa-milfordensis—Ceramoporella.
gregaria—Petigopora.
halli—Fistulipora.
    —Phylloporina.
    —Trematopora.
halliana—Polypora.
hamiltonense—Monticulipora winchelli.
hamiltonensis—Chætetes.
    —Cystodictya.
    —Reteporina.
    —Streblotrypa.
    (Callopora)—Streblotrypa.
    (Ceriopora)—Streblotrypa.
    (Polypora)—Reteporina.
    (Retepora)—Reteporina.
    (Rhombopora)—Streblotrypa.
hamiltoniana—Polypora.
harrisi—Helopora.
    (Calloporella)—Calloporella circularis.
helderbergiæ—Monotrypa.
helios—Fistulipora.
hemicycla—Semicoscinium labiatum.
hemispherica—Crepipora.
    —Fistulipora.
    (Callopora)—Fistulipora.
hemisphericus (Thecostegites)—Fistulipora.
hemitrypa—Hemitrypa proutana.
herrickana—Fenestella.
herricki—Bythopora.
hertzeri—Streblotrypa.
hestia—Fenestella.
heteropora—Callotrypa.
hexagona—Orthopora.
hexagonalis—Leptotrypa.
    —Pachydictya.
    —Polypora.
    (Fenestella)—Polypora.
hexagonalis-foraminulosa—Polypora.
hilli—Escharopora.
hindei—Semicoscinium.

hirsuta—Atactopora.
hispida—Chilotrypa.
hospitalis—Prasopora.
hopitalis-lævis—Monticulipora lævis.
hospitalis-neglecta—Prasopora hospitalis.
humifusa—Hernodia.
humile—Batostoma.
humilis—Chætetes.
(Rhinidictya)—Pachydictya.
huronensis—Fistulipora.
—Stenopora.
(Ceramopora)—Fistulipora.
hyale—Cœlocaulis.
idalia—Fenestella.
idothea—Polypora.
imbricata—Ceramopora.
—Helopora.
—Polypora.
(Cœloclema)—Diamesopora.
imbricella—Ceramopora.
immersa—Orthopora.
imperfectum—Hemiphragma.
implicatum—Batostoma.
impolita—Anolotichia.
impressa—Crepipora.
—Polypora.
inæqualis—Fenestella.
—Ptiloporella.
(Fenestella)—Ptiloporella.
incerta—Monotrypa.
—Phylloporina.
—Polypora.
(Retepora)—Phylloporina.
(Subretepora)—Phylloporina.
incipiens—Phænopora.
incisurata—Cystodictya.
inclusa—Ceramoporella.
—Favicella.
(Thallostigma)—Favicella.
inclusapora—Favicella inclusa.
incompta—Monticulipora.
incongruens—Fenestella.
incontroversa—Callopora.
incrassata—Fistulipora.
—Paleschara.
—Rhombopora.
—Stictopora.
(Callopora)—Fistulipora.
(Cystodictya)—Stictopora.
incrustans—Ceramopora.
—Paleschara.
incurva—Clonopora.
indenta—Cystodictya.
inexpectans—Monotrypa helderbergiæ.
infida—Mesotrypa.
inflata—Stomatopora.
—Tuberculopora.
(Alecto)—Stomatopora.
(Hippothoa)—Stomatopora.
inflecta—Heterotrypa.
inflexum—Semicoscinium.
informis—Leptotrypa.
infraporosa—Fenestrapora.
infrequens—Diamesopora.
—Ptilopora.
(Cœloclema)—Diamesopora.
(Trematopora)—Diamesopora.
infundibuliformis—Gorgonia.
insignis—Homotrypa subramosa-insignis.
instabilis—Homotrypella.
insueta—Atactoporella.
—Berenicea.
insularis—Prasopora.
intabulata—Monotrypa.
interaspera—Fistulipora.
intercalaris—Homotrypa.
—Stenopora.
intercella—Paleschara.
intercellatum—Lioclema.
intermedia—Clathropora.
—Dichotrypa.
—Fenestella.
—Pinnatopora.
—Polypora.
intermedius—Archimedes.
intermittens—Stenopora.
internascens—Chætetes.
internodata—Callotrypa.
internodia—Dicranopora.
interplana—Orthopora.
interpolata—Tæniodictya.
interporosa—Ceramoporella.
interruptum—Semicoscinium.
interstincta—Batostomella.
(Stictoporella)—Stictoporella flexuosa.
interstriata—Stictopora.
intertexta—Clathropora.
invaginatus—Archimedes.
invertis—Cystodictya.
involvens—Lioclema.
iowensis—Spatiopora.
irrasum—Hemiphragma.
irregularis—Ceramoporella.
—Cœlocaulis.
—Helopora.
—Leptotrypa.
(Alveolites)—Ceramoporella.

irregularis (Callopora)—Cœlocaulis.
(Ceramopora)—Batostoma implicatum.
(Chætetes)—Leptotrypa.
(Monotrypa)—Leptotrypa.
(Monticulipora)—Leptotrypa.
(Trematopora)—Orthopora.
jamesi—Batostoma.
(Chætetes)—Batostoma.
jamesii (Cyclopora)—Escharopora pavonia.
juncea—Fenestella.
kentuckyensis—Monticulipora.
—Ptilodictya.
keyserlingi—Glyptopora.
labecula—Ceramopora confluens.
labeculoidea—Ceramopora.
labeculosa—Spatiopora.
labiatum—Semicoscinium.
labiosa—Fistulipora.
labyrinthica—Stictopora.
læviramus—Bythopora gracilis.
lævis—Monticulipora.
lævis-consimilis—Monticulipora.
lævistriata—Polypora.
lamellata—Fistulipora.
lamellosa—Monticulipora.
laminata—Nicholsonella.
—Lioclema.
laminatum—Lioclema.
lanceolata-americana—Ptilodictya expansa.
largior—Fenestrapora.
largissima—Polypora.
lata—Prismopora.
—Rhinidictya.
—Unitrypa.
(Dicranopora)—Rhinidictya.
(Fenestella)—Unitrypa.
laticarina—Fenestella.
laticrescens—Ptiloporella.
latijuncturum—Semicoscinium.
latispiralis—Helicopora.
latitruncata—Polypora.
latum—Coscinium.
laxa—Proboscina.
(Archimedes)—Archimedes owenanus.
(Fenestella)—Archimedes.
laxata—Bythotrypa.
laxum—Chainodictyon.
laxum-minor—Chainodictyon.
laxus—Archimedes.
lens—Calloporella.
lens (Fistulipora)—Calloporella.
(Monticulipora)—Calloporella circularis.
lenticularis—Prasopora.
lepidodendroides—Rhombopora.
levinodata—Polypora.
libana—Escharopora.
—Stenopora.
lichenoides—Ptilodictya.
(Stromatopora)—Arthropora shafferi.
lilæa—Polypora.
limata—Cystodictya.
limbata—Fenestella.
limbatus-remotus—Fenestella remota.
limitaris—Constellaria.
—Diplotrypa.
—Escharopora.
—Fenestella.
(Stellipora)—Constellaria.
lineanoda—Fenestella.
linearis—Cystodictya.
lineata—Cystodictya.
—Nematopora.
—Orthopora.
—Spatiopora.
(Crateripora)—Escharopora falciformis.
(Helopora)—Nematopora.
(Phractopora)—Phractopora cristata.
(Rhombopora)—Orthopora.
(Trematopora)—Orthopora.
lineata-expansa (Crateripora)—Escharopora falciformis.
lineata-incepta—Spatiopora.
lineata-major—Cystodictya.
lineata-sancti-ludovici—Cystodictya.
lineinodis—Rhombopora.
lineinodis-humilis—Rhombopora.
lineopora—Nematopora.
lirata—Phænopora.
lobata—Euspilopora.
loculata—Loculipora.
lodiensis—Fenestella.
longimacula—Fistulipora.
longispina—Lichenotrypa.
lunata—Buskopora.
(Fistulipora)—Buskopora.
(Lichenalia)—Buskopora dentata.
lunata-tubulata—Buskopora dentata.
lunulatum—Semicoscinium.
lycoperdon—Chætetes.

lycoperdon (Prasopora) — Prasopora simulatrix.
lycoperdon-selwyni—Prasopora.
lycopodites—Favosites.
(Chætetes)—Chætetes lycoperdon.
lyelli—Fenestella.
lyra (Fenestella) — Lyropora subquadrans-lyra.
lyroides—Dichotrypa.
maccoyana—Polypora.
macropora—Callotrypa.
—Nematopora.
(Callopora)—Callotrypa.
(Trematopora)—Nematopora.
macropora-signata—Callotrypa.
macrostoma—Eridopora.
maculata—Atactopora.
—Ceramopora.
—Dekayia.
—Escharopora.
—Paleschara.
(Leptotrypa)—Paleschara.
(Monticulipora)—Dekayia.
(Ptilodictya)—Escharopora.
maculosa—Fistulipora.
—Spatiopora.
(Callopora)—Fistulipora.
(Lichenalia)—Fistulipora.
(Trematopora)—Fistulipora.
maculosa-incepta — Spatiopora lineata-incepta.
magna—Hederella.
—Monotrypa.
—Phænopora.
(Stictopora)—Phænopora.
magnifica—Fenestella.
—Ptilodictya.
magnipora—Pachydictya.
magnopora—Callopora.
magnoporum—Batostoma.
major—Streblotrypa.
mammillosa—Monticulipora molesta.
mammulata—Monticulipora.
(Monticulipora) (Nich.)—Heterotrypa frondosa.
mammulatus (Quenstedt)—Chætetes.
(Chætetes)—Monticulipora.
—Heterotrypa frondosa.
mammulata-molesta — Monticulipora molesta.
manitobense—Batostoma.
manitobensis—Polypora.
marcida—Fenestella.
marginalis—Fenestella.
marginata—Pinacotrypa.
(Polypora)—Polypora submarginata.
maxima—Ceramopora.
mediopora—Cœlocaulis
meekana—Fenestella.
—Stenopora.
meekanus—Archimedes.
meeki—Cystodictya.
—Bythopora.
—Helopora.
(Chætetes)—Bythopora.
(Homotrypella)—Bythopora.
(Monticulipora)—Bythopora.
(Ptilodictya)—Cystodictya.
megastoma—Phractopora.
membranacea—Berenicea.
mexicana—Polypora.
michelinia—Glyptopora.
(Phractopora)—Glyptopora sagenella-lata.
microporum—Lioclema.
microscopicus—Chætetes.
microtrema—Fenestella.
milfordensis — Ceramoporella granulosa-milfordensis.
milleri—Mesotrypa.
mimica—Fenestella.
minima—Leptotrypa.
—Prismopora.
—Rhinidictya.
(Eridopora)—Eridopora denticulata.
minima-modesta—Rhinidictya.
minimus (Favosites)—Monotrypa spherica.
minnesotense—Batostoma.
minnesotensis—Berenicea.
—Homotrypa.
minnesotensis-montifera—Homotrypa.
minor—Pinnatopora.
—Rhombopora.
minuta—Nematopora.
(Fistulipora)—Lioclema.
(Trematopora)—Nematopora.
minutum—Lioclema.
minutus—Bythopora delicatula.
minutissimum—Lioclema.
mirabile—Semicoscinium.
missouriensis—Lioclema punctatum.
modesta—Fenestella.
molesta—Monticulipora.

- moniliformis—Heterotrypa.
  - —Stomatopora.
  - (Amplexopora) — Heterotrypa.
  - (Chætetes)—Heterotrypa.
  - (Monticulipora) — Heterotrypa.
- monticula—Monticulipora.
- monticulata—Fistulipora.
  - —Monotrypa.
- monticulatus (Chætetes)—Monotrypa.
- montifera—Eurydictya.
  - —Spatiopora.
  - —Stenopora.
- montuosum—Batostoma.
- mucronata—Helopora.
- multaculeatum—Lioclema.
- multifida—Phænopora.
- multigranosa—Atactoporella.
- multiplex—Polypora.
- multipora—Eurydictya.
  - —Rhombopora.
  - (Fistulipora) — Chiloporella nicholsoni.
  - (Phænopora)—Eurydictya.
  - (Stictopora) — Cystodictya incisurata.
- multiporata—Homotrypella.
  - —Streblotrypa.
- multiporata-lodiensis—Fenestella lodiensis.
- multiramis—Ptilodictya.
- multiramus—Thamniscus.
- multispinosa—Dekayia.
  - —Fenestella.
- multiseriata—Callotrypa.
- multitabulata—Callopora.
- multituberculata—Monotrypella quadrata.
- mundula—Atactoporella.
  - —Homotrypella.
  - (Atactopora)—Atactoporella.
- mundulum—Mitoclema.
- muscatinensis—Chætetes.
- mutabilis—Eridotrypa.
  - —Polypora.
  - —Rhinidictya.
  - (Fenestella)—Polypora.
  - (Stictopora)—Rhinidictya.
- mutabilis-major—Rhinidictya.
- mutabilis-minor—Eridotrypa.
  - (Stictopora) — Rhinidictya.
- mutabilis-senilis—Rhinidictya.
- nana—Tropidopora.
  - —Unitrypa.
  - (Fenestella)—Unitrypa.
- nanus—Thamniscus.
- nashvillensis—Rhinidictya.
- nebulosa—Ptilodictya.
- neglecta—Diplotrypa.
  - —Fistulipora.
  - —Rhinidictya.
- neglecta-canadensis—Rhinidictya.
- neglecta-maculata—Fistulipora.
- negligens—Archimedes.
- nereidis—Pinnatopora.
- nereis—Ichthyorachis.
- nervata—Ptiloporella.
- nervia—Unitrypa.
- nervia-constricta—Unitrypa.
- newberryi—Aspidopora.
- newportensis—Atactoporella.
- nexa—Polypora.
- nexilis—Fenestella.
  - (Alecto)—Batostoma implicatum.
- niagarensis—Drymotrypa.
- nicholsoni—Chiloporella.
  - —Fenestella.
  - —Rhinidictya.
  - (Ceramopora)—Chiloporella.
  - (Monticulipora) — Chiloporella.
- nicklesi—Rhombopora.
  - —Streblotrypa.
- nitida—Cystodictya.
  - —Lioclemella.
  - (Graptodictya)—Graptodictya perelegans.
  - (Trematopora)—Lioclemella.
- nitidula—Batostomella.
  - —Dicranopora.
  - (Ptilodictya)—Dicranopora.
- nodata—Pinnatopora.
  - —Reptaria.
  - (Glauconome)—Pinnatopora.
  - (Ptilionella)—Reptaria.
- nodocarinata—Polypora.
- nododorsalis—Fenestella.
- nodosa—Fenestella.
  - —Helopora.
  - —Hemitrypa.
  - —Monotrypa.
  - —Orthopora.
  - —Prasopora.
  - —Ptilodictya.
  - —Ptilopora.
  - —Trematella.

- nodosa—Trematopora.
  - (Trematopora)—Trematella.
- nodulosa—Callopora.
  - —Calloporella.
  - (Monticulipora)—Callopora.
- nodulosus (Chætetes)—Callopora.
- nodulifera—Fistulipora.
- noe—Fenestella.
- normalis—Fenestella.
  - —Fistulipora.
- norwoodiana—Fenestella.
- notha—Ceramopora.
- nummiformis—Callopora.
- nysa—Thamniscus.
- obesa—Pachydictya.
- obliqua—Eridotrypa.
  - —Homotrypa.
  - —Polypora.
  - —Ptilodictya.
  - —Rhinidictya.
  - —Streblotrypa.
  - (Stictopora) — Cystodictya incisurata.
    - —Ptilodictya.
- obliquata—Ptilotrypa.
- obliquatum—Semicoscinium lunulatum.
- obliquus—Arthrostylus.
- obscura—Dekayella.
- obsoleta—Stictopora.
- occidens—Lioclema.
- occidentalis—Fenestrapora.
  - —Pachydictya.
  - —Tæniopora.
- ocellata—Cystodictya.
- octonarius—Thamniscus.
- oculata—Prasopora.
- oculifera—Callotrypa.
- offula—Paleschara.
- ohioensis—Ceramoporella.
  - —Lioclemella.
  - —Rhombopora.
  - —Stenopora.
  - (Callopora)—Lioclemella.
  - (Ceramopora)—Ceramoporella.
  - (Monticulipora)—Dekayella ulrichi-robusta.
- onealli—Callopora.
  - (Monticulipora (Heterotrypa))—Callopora onealli-sigillarioides.
- onealli-communis—Callopora.
- onealli-sigillarioides—Callopora.
- operculata—Pinacotrypa.
- oppleta—Callopora.
- orbiculata—Ceramopora.
- orbicutata—Ceramopora.
- orbipora—Orthopora.
  - —Stictotrypa.
  - (Stictopora)—Stictotrypa.
  - (Trematopora)—Orthopora.
- ornata—Leptotrypa.
  - —Orthopora.
  - (Trematopora)—Orthopora.
    - —Trematopora primigenia-ornata.
- ortoni—Atactoporella.
  - (Chætetes)—Atactoporella.
  - (Monticulipora)—Atactoporella.
    - —Monotrypa nodosa.
- osculum—Diamesopora.
- ostiolata—Chilotrypa.
- ottawaense—Hemiphragma.
- ottawaensis—Astroporites.
- ottawense—Hemiphragma.
- ovalis—Lyropora.
  - —Nematopora.
- ovata—Cystodictya.
  - —Fistulipora.
  - —Homotrypella.
  - —Stromatotrypa.
  - (Lichenalia)—Fistulipora.
  - (Stictopora)—Cystodictya.
- ovatipora—Cystodictya.
  - —Orthopora.
  - (Stictopora) (Hall)—Cystodictya.
    - (Miller) — Stictotrypa similis.
  - (Trematopora)—Orthopora.
- ovatopora—Eschara.
- ovatum—Acanthoclema.
- owenanus—Archimedes.
- oweni—Cœloclema.
- paliformis—Glossotrypa.
- palmipes—Euspilopora.
- papillata—Monticulipora.
- papillatus—Chætetes.
- papillosa—Stictopora.
- parallela—Fenestella.
  - —Orthopora.
  - —Ptilocella.
  - —Rhinidictya.
  - (Fenestella)—Loculipora loculata.
  - (Ptilodictya) (James)—Rhinidictya.
    - (H. & S.)—Ptilocella.

parallela (Trematopora)—Orthopora.
parasitica—Idiotrypa.
—Monticulipora.
—Sphragiopora.
(Callopora)—Lioclema and Cœlocaulis mediopora.
(Fistulipora)—Lioclema.
parasitica-plana—Monticulipora.
parasiticum—Lioclema.
parmula—Aspidopora.
parmula-fenestelliformis—Aspidopora.
parva—Constellaria.
—Dicranopora.
—Stomatopora.
(Monticulipora)—Constellaria.
parvicella—Ceramopora.
parvula—Bythopora.
parvulipora—Fenestella.
patella—Mesotrypa.
patellifera—Fenestella variapora.
pateriformis—Hemitrypa.
patula—Stenopora.
paucipora—Callotrypa.
paucirama—Prismopora.
pauciramus—Thamniscus.
paupera—Heterotrypa.
—Ptilopora.
—Rhinidictya.
(Stictopora)—Rhinidictya paupera and neglecta.
pavonia—Escharopora.
pavonica—Escharopora pavonia.
paxillata—Polypora.
peculiaris—Actinotrypa.
—Fenestella.
(Fistulipora)—Actinotrypa.
pediculata—Rhinidictya.
pelliculata—Dekayia.
penniformis—Tæniopora.
(Ptilionella)—Reptaria stolonifera.
perampla—Crepipora.
perangulata—Polypora.
perantiqua—Gorgonia.
perarcta—Cystodictya.
perelegans—Callopora.
—Fenestella.
—Graptodictya.
(Ptilodictya)—Graptodictya.
perforata—Loculipora.
permarginata—Fistulipora.
—Stictopora.
(Fenestella)—Semicoscinium.
permarginata (Lichenalia)—Fistulipora.
permarginatum—Semicoscinium.
perminimus—Archimedes.
perminuta—Fenestella.
—Strotopora.
pernodosa—Unitrypa.
perplexa—Fenestella.
persimilis—Rhombopora.
perspinulata—Trematella.
perstriata—Hemitrypa.
pertenuis—Paleschara.
—Phacelopora.
(Fenestella)—Fenestella proutana.
(Rhopalonaria)—Stomatopora delicatula.
pertollata—Reteporina.
perundata—Reteporidra.
perundulata—Reteporina.
perversa—Cycloporella.
petasiformis—Amplexopora.
petasiformis-welchi—Amplexopora.
petechialis—Petigopora.
petropolitanus—Chætetes.
(Chætetes)—Mesotrypa whiteavesi.
philia—Fenestella.
phillipsi—Reteporina.
pinnata—Phractopora.
—Ptiloporina.
—Septopora.
(Fenestella)—Ptiloporina.
(Glyptopora)—Phractopora.
(Pinnaporina)—Ptiloporina.
plana—Pinacotrypa.
planiramosa—Fenestella.
(Fenestella) (Lower Helderberg)—Polypora.
planodorsatum—Semicoscinium.
platyphylla—Phænopora expansa.
plumaria—Ptilodictya.
plumea—Stictoporina.
plumosa—Glyptopora.
—Hemitrypa.
(Fenestella)—Hemitrypa.
plumosum (Coscinium)—Glyptopora and Glyptopora sagenella-caliculosa.
polygona—Orthopora.
polymorpha—Stenopora tuberculata.
polystomella—Constellaria.
(Monticulipora)—Constellaria constellata and polystomella.
ponderosa—Anolotichia.

- ponderosa—Nicholsonella.
  - —Ptilodictya.
  - (Callopora)—Lioclema.
  - (Fistulipora)—Lioclema.
  - (Fistuliporina)—Lioclema.
  - (Trematopora) — Fistulipora maculosa.
- ponderosum—Lioclema.
- ponderosus—Chætetes.
- popeana—Fenestella.
- porosa—Polypora.
- præcursor—Unitrypa.
- prænuntia—Dekayella.
- prænuntia-multipora—Dekayella.
- prænuntia-nævigera—Dekayella.
- prænuntia-simplex—Dekayella.
- prima—Rhinopora.
  - (Hemitrypa)—Unitrypa nervia.
- primigenia—Trematopora.
- primigenia-ornata—Trematopora.
- primigenia-spinosa—Trematopora.
- primitiva—Berenicea.
- prisca—Reteporina.
  - —Streblotrypa.
  - (Cavea)—Streblotrypa.
  - (Fenestella)—Semicoscinium tenuiceps.
  - (Retepora)—Reteporina.
- proceritas—Fenestella.
- projecta—Unitrypa acaulis.
- prolifera—Acrogenia.
- prolifica—Fistulipora.
  - (Heterotrypa)—Heterotrypa subramosa-prolifica.
  - (Monticulipora) — Heterotrypa subramosa-prolifica.
- prolixa—Fenestella.
- proporoides (Fistulipora) — Pinacotrypa elegans.
- propria (Fenestella)—Polypora.
- proutana—Fenestella.
  - —Hemitrypa.
  - (Stomatopora) — Stomatopora delicatula.
- proutana-nodulosa—Hemitrypa.
- proutana-vermifera—Hemitrypa.
- proutanus—Archimedes.
- prouti—Ptilopora.
- proxima—Monotrypa.
- proximus (Favosites)—Monotrypa.
- psyche—Polypora.
- pulchella—Callopora.
  - —Fenestella.
  - —Polypora.
- pulchella—Rhombopora.
- pulchella-persimilis—Callopora.
- pulchellum—Arthroclema.
- pulchellus (Chætetes)—Callopora andrewsi.
- pulchra—Nicholsonella.
- pumila—Pachydictya.
- pumila-sublata—Pachydictya.
- punctata—Constellaria.
  - —Phænopora.
  - —Trematopora.
  - (Callopora)—Lioclema.
  - (Monticulipora)—Constellaria.
  - (Ptilodictya)—Phænopora.
- punctatum—Lioclema.
- punctifera—Eridopora.
- punctillatum—Lioclema.
- punctipora—Glyptopora.
  - —Stictotrypa.
  - (Stictopora)—Stictotrypa.
- punctostriata—Polypora.
- pustulosa—Amplexopora.
  - —Cystodictya.
  - —Fistulipora.
  - (Lichenalia)—Fistulipora.
  - (Monticulipora)—Amplexopora.
- puteolata—Intrapora.
- pyriformis—Buskopora.
- quadrangula—Fenestella.
- quadrangularis—Leptotrypa.
  - —Polypora.
  - (Chætetes) — Leptotrypa quadrangularis.
  - (Fenestella)—Polypora.
  - (Paleschara)—Leptotrypa.
- quadrata—Helopora.
  - —Monotrypella.
  - (Monticulipora)—Monotrypella.
  - (Nematopora) — Nematopora ovalis.
- quadrata-subquadrata—Monotrypella subquadrata.
- quadratus (Chætetes)—Monotrypella.
- quadrula—Unitrypa.
- quebecensis—Mesotrypa.
- quinqueradiata—Evactinopora.
- quincuncialis—Lyropora.
- radialis—Polypora.
  - —Streblotrypa.
  - —Vinella.
- radiata—Ceramopora.
  - —Evactinopora.
  - —Lichenalia.
  - —Paleschara.

radiata—Scenellopora.
radiciformis-conferta—Vinella.
ramosa—Atactoporella.
—Caliopora.
—Ceriopora.
—Escharopora.
—Fistulipora.
—Stenopora.
—Stictopora.
(Eschara)—Phænopora fimbriata.
(Lichenalia)—Fistulipora.
(Monticulipora)—Callopora.
(Ptilodictya)—Escharopora.
ramosa-dalei—Callopora dalei.
ramosa-rugosa—Callopora rugosa.
ramosus (Chætetes)—Callopora.
ramulosa—Anisotrypa.
—Tæniodictya.
ramulosa-burlingtonensis—Tæniodictya.
ramulosus—Thamniscus.
ramulosus-sevillensis—Thamniscus sevillensis.
ranosculum—Lyropora.
raripora—Ceramopora.
—Nematopora.
(Ptilodictya)—Nematopora.
(Stictopora)—Nematopora.
recta—Cystodictya.
—Escharopora.
—Stomatopora.
(Escharopora)—Escharopora falciformis.
(Stictopora)—Cystodictya.
recta-nodosa—Escharopora.
rectangularis (Monticulipora)—Monotrypella quadrata.
rectilatera (Stictopora)—Cystodictya.
rectilinea—Cystodictya.
—Trematopora.
rectimuralis—Monotrypa.
rectistyla—Septopora.
recubans—Tæniopora.
regalis—Fenestella.
regalis-macra—Fenestella.
regularis—Mesotrypa.
—Orthopora.
—Streblotrypa.
(Diplotrypa)—Mesotrypa.
(Rhombopora)—Orthopora.
(Trematopora)—Orthopora.
remota—Fenestella.
repens—Vinella.
reticulata—Eschara.
—Orthopora.
reticulata—Paleschara.
—Phylloporina.
(Intricaria)—Phylloporina.
(Rhombopora)—Orthopora.
(Subretepora)—Phyllopora.
(Trematopora)—Orthopora.
retiformis—Gorgonia.
(Ptilodictya)—Stictoporina.
retrorsa—Lyropora.
—Nematopora.
—Polypora.
(Fenestella)—Lyropora.
(Unitrypa)—Unitrypa tegulata.
reversa—Arthropora.
(Archimedes)—Archimedes wortheni.
rhombicum—Semicoscinium.
rhombicus—Cœloconus.
(Chætetes)—Monotrypella quadrata.
rhombifera—Orthopora.
—Reteporina.
—(Fenestella)—Reteporina.
(Trematopora)—Orthopora rhombifera and Stictopora granatula.
rhomboidea—Tæniodictya.
(Cycloporina)—Semicoscinium semirotundum.
(Stictopora)—Tæniodictya.
rhomboideum—Semicoscinium.
richfieldensis—Fenestella.
rigida—Cystodictya.
—Polypora.
—Stictoporella.
(Fenestella)—Polypora.
(Stictopora)—Cystodictya.
robusta—Amplexopora.
—Pachydictya.
—Polypora.
—Septopora.
(Fenestella)—Polypora.
robusta-intermedia—Septopora.
romingeri—Fistulipora.
rotunda—Mesotrypa.
rudis—Fenestella.
—Stenopora.
(Pachydictya)—Pachydictya crassa.
(Ptilodictya)—Pachydictya crassa.
rugosa—Callopora.
(Fistulipora)—Batostoma.
(Monticulipora)—Callopora.
rugosum—Batostoma.
rugosus—Chætetes.

rugosus (Chætetes)—Callopora.
rustica—Homotrypella.
—Polypora.
(Fenestella)—Polypora.
(Monticulipora)—Callopora.
(Pachydictya)—Pachydictya crassa.
(Ptilodictya)—Pachydictya crassa.
saffordi—Fistulipora.
saganella (Coscinium)—Glyptopora sagenella.
—Glyptopora.
(Phractopora)—Glyptopora michelinia.
sagenella-caliculosa—Glyptopora.
sagenella-lata—Glyptopora.
sancti-ludovici—Fenestralia.
sancti-ludovici-compacta—Fenestralia compacta.
scabiosa—Petigopora.
scalaris—Unitrypa.
scalariformis—Scalaripora.
schucherti—Atactoporella.
scidacea—Ceramella.
scitula (Pachydictya)—Pachydictya crassa.
(Stictopora)—Cystodictya.
scrobiculata—Crisinella.
—Fistulipora.
(Crisina)—Crisinella.
(Fistuliporina)—Fistulipora.
(Thallostigma)—Fistulipora.
scutulata—Stictoporina.
—Streblotrypa.
(Ptilodictya)—Stictoporina.
(Stictopora)—Stictoporina.
(Trematopora) (Upper Helderberg)—Orthopora.
(Trematopora) (Hamilton)—Streblotrypa.
sculptilis—Thamniscus.
(Fenestella)—Fenestella stellata.
scutulata—Orthopora.
scutulatum (Acanthoclema)—Streblotrypa.
segregatum—Lioclema.
selkirkensis—Mesotrypa.
selwyni—Prasopora.
(Monticulipora)—Prasopora simulatrix and Prasopora selwyni.
selwyni-hospitalis—Prasopora hospitalis.
semipilaris—Leptotrypa.
semireducta—Clonopora.
semirotundum—Semicoscinium.
semistriata—Cystodictya.
separata—Homotrypa.
—Polypora.
—Scalaripora.
(Fenestella)—Polypora.
septosa—Amplexopora.
sereata—Prismopora serrata.
serialis—Fistulipora.
serrata—Euspilopora.
—Fenestella.
—Prismopora.
serratula—Fenestella.
serrulata—Pinacotrypa.
—Prismopora.
(Fistuliporina)—Pinacotrypa.
(Thallostigma)—Pinacotrypa.
sevillensis—Fenestella.
—Thamniscus.
sexradiata—Evactinopora.
shafferi—Arthropora.
shafferi-cleavelandi—Arthropora.
shumardi—Fenestella.
—Polypora.
(Fenestella)—Fenestella perelegans.
(Protoretepora)—Polypora.
sigillarioides—Callopora onealli-sigillarioides.
signata—Stenopora.
(Trematopora)—Callotrypa macropora-signata.
siluriana—Gorgonia.
similis—Homotrypa.
—Stictotrypa.
(Stictopora)—Stictotrypa.
simplex—Arthropora.
—Bactropora.
—Nemataxis.
(Monotrypella)—Eridotrypa.
simulans—Crepipora.
—Cystodictya.
simulatrix—Eridotrypa.
—Pinnatopora.
—Polypora.
—Prasopora.
—Rhombopora.
(Monticulipora)—Eridotrypa.
simulatrix-orientalis—Prasopora.
singularis—Heterotrypa.
—Trematopora.
(Callopora)—Trematopora.
(Fenestella)—Fenestella singularitas.

singularis (Monticulipora)—Heterotrypa.
singulare—Trematopora.
singularitas—Fenestella.
sinistralis—Ptiloporina.
sinuosa—Cystodictya.
—Fenestella.
Pinnatopora.
(Glauconome)—Pinnatopora.
(Stictocella)—Cystodictya.
(Stictopora)—Cystodictya.
socialis—Botryllopora.
solida—Anisotrypa.
—Crepipora.
—Homotrypa.
(Trematopora)—Homotrypa.
solidissima—Lioclemella.
solitaria—Heterotrypa.
sparsa (Trematopora)—Diploclema.
sparsipora—Prismopora.
sparsum—Diploclema.
spatiosa—Crepipora.
(Unitrypa)—Unitrypa lata.
spatulata—Worthenopora.
spergenensis—Fistulipora.
sphærica—Monotrypa.
sphærion—Leptotrypa.
spheroideum—Lioclema.
spiculata—Trematopora.
spinifera—Cycloporella.
spiniformis—Helopora.
spininodata—Polypora.
spinosa—Mesotrypa.
—Worthenopora.
spinosula (Monotrypa)—Monotrypa spinulosa.
spinulifera—Fistulipora.
—Polypora.
spinulosa—Batostomella.
—Bythopora.
—Monotrypa.
(Trematopora) (Hall, 1852)—Bythopora.
(Trematopora) (Hall, 1876)—Trematopora spiculata.
spio—Fenestella.
spiralis—Rhombopora.
spissa—Fenestella.
splendens—Pachydictya.
stidhami—Leptotrypa.
stipata (Fenestella)—Unitrypa tegulata.
stellata—Ceramoporella.
—Fenestella.
—Patellipora.
—Pinacotrypa.
stellata (Fistuliporina)—Pinacotrypa.
(Lichenalia)—Pinacotrypa.
stellatum—Ascodictyon.
stellifera—Meekopora.
sterlingensis—Eurydictya.
stolonifera—Reptaria.
stragula—Polypora.
strata (Fenestella)—Reteporina striata.
striata—Bythopora.
—Callotrypa.
—Pinnatopora.
—Ptilopora.
—Reteporina.
—Stictopora.
—Streblotrypa.
—Trematopora.
(Callopora)—Callotrypa.
(Sagenella)—Escharopora falciformis.
(Thallostigma)—Lioclema minutum.
striatopora—Nematopora.
—Polypora.
(Fenestella)—Polypora.
(Helopora)—Nematopora.
striatum—Arthroclema.
—Coscinium.
striaturum—Coscinium.
stricta—Polypora.
strigosa—Nematopora.
subæquata—Crepipora.
subangulata—Pinnatopora.
subannulata—Rhombopora.
subcarinata—Tæniopora.
subcava—Fistulipora.
subconcava—Scalaripora.
subcylindrica—Amplexopora filiosa.
subflexuosa—Fenestella.
subfusiformis—Lioclemella.
subglobosa—Monotrypa turbinata.
subglobosum—Lioclema.
subgracilis—Homotrypella.
subimbricata—Diamesopora.
sublaxa—Phylloporina.
sublaxus—Archimedes.
submarginata—Polypora.
submutans—Polypora.
subnodosa—Callopora.
subplana—Callopora.
subpulchella—Heterotrypa.
subquadrans—Lyropora.
—Septopora.
subquadrans-lyra—Lyropora.
subquadrata—Monotrypella.

subquadrata—Orthopora.
(Trematopora)—Orthopora.
subramosa—Heterotrypa.
—Homotrypa.
(Atactopora)—Heterotrypa.
subramosa-insignis—Homotrypa.
subramosa-prolifica—Heterotrypa.
subrecta—Escharopora.
—Tæniodictya.
(Ptilodictya)—Escharopora.
subretiformis—Fenestella.
subrigida—Cystodictya.
subrotundus—Chætetes.
subspinosa—Streblotrypa.
substellata—Fistulipora.
substriata—Unitrypa.
subtile—Lioclema.
subtortile—Semicoscinium.
subtrigona—Fistulipora.
subtriquetra—Prismopora triquetra.
sulcata—Cystodictya.
—Fistulipora.
—Ptilodictya.
(Stictopora)—Cystodictya.
sulcatum—Acanthoclema.
sulcifera—Rhombopora.
superba—Phænopora.
—Trematopora.
(Amplexopora) (Foord)—Batostoma.
(Amplexopora) (Ulrich)—Batostoma minnesotense.
(Phyllopora) — Reteporidra perundata.
(Ptilodictya)—Phænopora.
superbum—Batostoma.
swallovanus—Archimedes.
sylvia—Fenestella.
symmetra—Ptilodictya.
symmetrica—Anisotrypa.
tabulata—Monotrypa.
—Rhombopora.
tabulatum (Ptychonema)—Monotrypa.
tabulatus (Chætetes)—Monotrypa.
tantula—Polypora.
tarda—Ptilodictya.
tegulata—Unitrypa.
tenax—Fenestella.
tenella—Atactoporella.
—Fenestella.
—Polypora.
(Atactopora)—Atactoporella.
tenera—Hemitrypa.
—Ptilodictya.
tenue (Arthronema)—Arthrostylus.
tenuiceps—Semicoscinium.
(Fenestella) (Hall) — Semicoscinium.
(Fenestella) (Nich.) — Fenestella arkonensis.
tenuimurale—Hemiphragma.
tenuirama—Rhombopora.
tenuiramosa—Pinnatopora.
tenuis—Arthrostylus.
—Chætetes.
—Fenestella.
—Paleschara.
—Phænopora.
(Escharopora)—Phænopora.
(Helopora)—Arthrostylus.
(Ptilodictya)—Phænopora.
tenuissima—Stomatopora delicatula-tenuissima.
tenuistriata—Pinnatopora.
terebriformis—Archimedes.
teres—Ptilodictya nodosa.
tessellata—Favicella.
thyene—Semicoscinium.
torta—Fistulipora.
(Fenestella)—Semicoscinium.
(Lichenalia)—Fistulipora torta and Fistulipora triserialis.
tortalinea—Orthopora.
tortuosa—Fistulipora serialis.
tortum—Semicoscinium.
transversa—Orthopora.
—Polypora.
(Fenestella) — Unitrypa tegulata.
(Rhombopora)—Orthopora hexagona.
(Trematopora)—Orthopora.
transversalis—Rhombopora.
trentonense—Cœloclema.
—Diploclema.
trentonensis—Dekayella.
—Eridotrypa.
—Phylloporina.
—Rhinidictya.
(Dekayia)—Dekayella.
(Diamesopora)—Cœloclema.
(Dicranopora)—Rhinidictya.
(Monticulipora) — Eridotrypa.
(Monotrypella)—Eridotrypa.
(Retepora)—Phylloporina.
(Subretepora) — Phylloporina.

triangularis—Fistulipora.
triangulata—Prismopora.
trifaria—Fistulipora.
trifolia—Phractopora.
trilineata—Cystodictya.
—Pinnatopora.
(Glauconome)—Pinnatopora.
(Stictopora)—Cystodictya.
triloba—Fistulipora.
triquetra—Prismopora.
triseriale—Acanthoclema.
triserialis—Fenestella.
—Pachydictya.
(Stictopora)—Acanthoclema.
trituberculata—Fenestella.
tuberculata—Eschara.
—Fenestella.
—Fistulipora.
—Homotrypa.
—Polypora.
—Spatiopora.
—Stenopora.
(Flustra)—Stenopora.
(Monticulipora)—Spatiopora.
(Nich.)—Spatiopora corticans.
(Polypora)—Polypora arkonensis.
tuberculatum—Semicoscinium.
(Coscinium)—Fistulipora.
tuberculatus (Chætetes)—Spatiopora.
(Nich.) — Spatiopora corticans.
tuberculosa—Rhinopora.
—Trematopora.
tubulosa—Diamesopora.
—Rhinopora.
(Trematopora)—Diamesopora.
tumulosa—Cystodictya.
—Proboscina.
(Stictopora)—Cystodictya.
turbinata—Monotrypa.
turgida—Pachydictya.
—Stomatopora.
typicalis—Atactoporella.
typicalis-præcipta—Atactoporella.
ulrichi—Dekayella.
—Helicopora.
—Hemitrypa.
(Monticulipora)—Dekayella.
ulrichi-robusta—Dekayella.
umbilicata—Fistulipora.
undulata—Callopora.
—Intrapora.
—Monotrypa.
(Monticulipora)—Monotrypa.
(Reteporella)—Reteporidra perundata.
(Stictoporella)—Intrapora.
undulata-hemispherica—Monotrypa.
undulatus (Chætetes)—Monotrypa.
uniformis—Peronopora compressa.
unilinea—Fistulipora.
unispina—Callotrypa.
unjiga—Monotrypella.
utriculus—Fistulipora.
valida—Ptilopora.
vanclevii—Phænopora fimbriata.
varia—Chilotrypa.
—Constellaria.
—Polypora.
—Phyllodictya.
(Diamesopora)—Chilotrypa.
(Fenestella)—Polypora.
(Rhombopora)—Rhombopora varians.
(Trematopora)—Chilotrypa.
variabile (Batostoma)—Batostoma varians.
variabilis—Fenestella.
—Ptilodictya.
(Ptilodictya)—Ptilodictya nodosa.
variacella—Paleschara.
varians—Batostoma.
—Rhombopora.
(Chætetes)—Batostoma.
(Monticulipora)—Batostoma.
variapora—Fenestella.
—Pinacotrypa.
(Fistulipora)—Pinacotrypa.
(Thallostigma)—Pinacotrypa.
variolata—Chilotrypa.
—Phylloporina.
(Phyllopora)—Phylloporina.
(Subretepora)—Phylloporina.
(Trematopora)—Chilotrypa.
variolatus—Thamniscus.
variopora (Fistuliporina)—Pinacotrypa.
varipora—Helopora.
varium—Batostoma.
varsoviensis—Polypora.
vaupeli—Nicholsonella.
(Diamesopora)—Cœloclema alternatum.
(Heterotrypa)—Nicholsonella.

vaupeli (Monticulipora)—Nicholsonella.
venosa—Rhinopora.
    —Rhopalonaria.
venusta—Cœlocaulis.
    —Crepipora.
    (Callopora)—Cœlocaulis
    (Monticulipora)—Crepipora.
venustus (Chætetes)—Crepipora.
vera—Fenestella.
    —Peronopora.
vermicula—Cystodictya.
verrucosa—Fenestella.
    —Rhinopora.
    (Monticulipora) — Calloporella nodulosa.
vesiculata—Fistulipora.
vesiculosa—Berenicea.
    —Trematopora.
vinei—Pinnatopora.
virgulacea—Septopora biserialis.
wachsmuthi—Lioclema.
welchi—Amplexopora petasiformis-welchi.
welshi—Phænopora multifida.
westoni—Diplotrypa.
    —Monticulipora.
wetherbyi—Monticulipora.
wetherbyi-asperula—Petigopora asperula.
whiteavesi—Mesotrypa.
    —Ptilodictya.
    (Monticulipora)—Mesotrypa.
    (Monticulipora)—Prasopora selwyni.
whiteavesi (Monticulipora)—Prasopora simulatrix-orientalis.
whitei—Ceramoporella.
    —Pinnatopora.
    —Polypora.
    (Ceramopora)—Ceramoporella.
whitei-eximia—Polypora whitei-insculpta.
whitei-insculpta—Polypora.
whitii (Glauconome)—Pinnatopora.
whitfieldi—Hemiphragma.
    —Ptilodictya.
    —Trematopora.
    (Monticulipora)—Hemiphragma.
wilmingtonense—Lioclema.
wilmingtonensis—Phænopora.
winchelli—Batostoma.
    —Monticulipora.
    (Amplexopora)—Batostoma.
winchelli-nodosum—Batostoma.
winchelli-spinulosum—Batostoma.
wortheni—Archimedes.
    —Coscinium.
    —Fenestella.
    —Monticulipora.
    —Rhombopora.
    (Fenestella (Archimedes))—Archimedes.
youngi—Pinnatopora.
zigzag—Cystodictya.

INDEX OF AUTHORS AND THEIR PAPERS.

Page.
Ami. 1892. Cambro-Sil. Foss.: Canad. Record Science, V 147
1895. Notes on Canadian Foss. Bryozoa: Canad. Record Science, VI .. 148
Bassler. See Harper and Bassler.
Billings. 1859. Chazy Foss.: Canad. Nat. Geol., IV 128
1862. Pal. Fos., I 129
1865. New Pal. Foss.: Canad. Nat. (2), II 130
1866. Sil. Foss. Island Anticosti 130
1874. Pal. Foss., II 132
Buel. 1882. Corals of Delafield: Trans. Wis. Acad. Sci., V 139
Castelnau. 1843. Systeme Silurien 126
Claypole. 1881. Archimediform Fenestellid: Proc. Amer. Assoc. Adv. Sci., XXX 138
1883. On Helicopora: Quar. Jour. Geol. Soc. London, XXXIX ... 140
Cole. 1893. On Hemitrypa hibernica, McCoy: Sci. Proc. Roy. Dublin Soc. (n. s.), VIII 147
Conrad. 1841. Appendix to Hodge's Second. Tert. Formations: Am. Jour. Sci., XLI 152
1847. On the Eocene Formation: Proc. Acad. Nat. Sci. Phila., III; Jour. Acad. Nat. Sci. Phila. (2), I 153
1855. Miocene and Post-Pliocene of Calif.: Proc. Acad. Nat. Sci. Phila., VII 153
Credner. 1870. Die Kreide von New Jersey: Zeitsch. Deutsch. Geol. Gesellsch., XXII 158
Dana. 1846. Zoophyta 126
Davis. 1885. Kentucky Foss. Corals 142
Dawson. 1868. Acadian Geol., ed. 2 131
Dyer. See Miller and Dyer.
Eaton. 1832. Geol. Text-book 125
Emmons. 1858. North Carolina Geol. Sur 153
Etheridge, Jun. See Nicholson and Etheridge, Jun.
Foerste. 1887. Flint Ridge Bryozoa: Bull. Sci. Lab. Denison Univ., II 143
1887. Clinton Group of Ohio: Bull. Sci. Lab. Denison Univ., II 143
1887. Recent Methods in study of Bryozoa: Science, X 143
1888. Notes on Pal. Foss.: Bull. Sci. Lab. Denison Univ., III 144
1889. Clinton Group Foss.: Proc. Boston Soc. Nat. Hist., XXIV ... 145
1895. Foss. Clinton Group: Geol. Sur. Ohio, VII 148
Foord. 1883. Contrib. Micro-Pal. Cambro-Sil 140
1884. Monticuliporoid Corals: Ann. Mag. Nat. Hist. (5), XIII 141
See also Nicholson and Foord.
Gabb and Horn. 1860. New Cret. Corals: Proc. Acad. Nat. Sci. Phila., XII .. 153
1860. New Amer. Tert. Cret. Foss.: Jour. Acad. Nat. Sci. Phila. (2), IV 154
1862. Mon. Second. Tert. Foss. Polyz.: Jour. Acad. Nat. Sci. Phila. (2), V 154
Geinitz. 1867. Carb. Dyas in Nebraska: Verh. Leopoldino-Carol. Akad. Naturf., XXXIII 131
Grabau. 1899. Geol. Pal. Eighteen-Mile Creek: Bull. Buffalo Soc. Nat. Sci., VI 150
1900. Faunas of Hamilton Group of Eighteen-Mile Creek: Sixteenth Ann. Rep. State Geol. New York 150

Page.
Gregorio. 1890. Monographie Faune Eocenique Alabama 159
Haime. See Milne-Edwards and Haime.
Hall. 1847. Pal. New York, I 126
1851. Pal. Foss.: Foster and Whitney's Geol. Lake Superior Land District 126
1851. New Genera Foss. Corals: Amer. Jour. Sci. Arts (2), XI 127
1852. Pal. New York, II 127
1857. Archimedes or Fenestella: Amer. Jour. Sci. Arts (2), XXIII ... 128
1857. Archimedes or Fenestella: Proc. Amer. Assoc. Adv. Sci., X 128
1858. Geol. Sur. Iowa, I, Pal 128
1860. Sil. Foss. Nova Scotia: Canad. Nat. Geol., V 129
1874. Lower Helderberg Bryozoa: Twenty-sixth Ann. Rep. New York State Museum 132
1876. Illustrations Devonian Fossils 135
1876. Fauna Niagara Group in Indiana: Twenty-eighth Ann. Rep. New York State Museum (doc. ed.) 135
1879. Niagara Foss. from Waldron, Ind.: Twenty-eighth Ann. Rep. New York State Mus. (Mus. ed.) 137
1879. New species from the Niagara at Waldron, Ind.: Trans. Albany Inst., X, 1883 137
1880. Lower Held. Corals and Bryozoans: Thirty-second Ann. Rep. New York State Mus 138
1881. Bryoz. Upper Held. and Hamilton Groups: Trans. Albany Inst., X, 1883 138
1882. Niagara Foss. from Waldron, Ind.: Eleventh Ann. Rep. Indiana Geol. Nat. Hist 139
1883. Genus Fenestella: Rep. State Geol. New York for 1882 141
1883. Bryoz. Upper Held. Group: Rep. State Geol. New York for 1882. 141
1883. Van Cleve's Foss. Corals: Twelfth Ann. Rep. Indiana Geol. Nat. Hist 140
1884. Bryozoans Ham. Group: Rep. State Geol. New York for 1883.. 141
1884. Bryozoans Ham. Group: Thirty-sixth Ann. Rep. New York State Mus 141
1885. Growth of the Fenestellidæ: Rep. State Geol. New York for 1884. 142
1886. Bryoz. Upper Held. Group: Fifth Ann. Rep. State Geol. New York for 1885 142
1887. Fenestellidæ of the Ham. Group: Sixth Ann. Rep. State Geol. New York for 1886 143
1888. New Species of Fenestellidæ: Rep. State Geol. New York for 1887; Forty-first Ann. Rep. New York State Mus 144
1891. Descriptions of Bryozoa: Tenth Ann. Rep. State Geol. New York for 1890; Forty-fourth Ann. Rep. New York State Mus 146
Hall and Simpson. 1887. Pal. New York, VI 144
Hall and Whitfield. 1873. Dev. Foss.: Twenty-third Ann. Rep. New York State Mus 132
1875. Sil. Invert. Foss.: Pal. Ohio, II 133
Harper and Bassler. 1896. Catal. Foss. Trenton and Cincinnati Periods 148
Herrick. 1888. Geol. Licking County: Bull. Denison Univ., IV 145
1895. Obs. on Waverly Group: Geol. Sur. Ohio, VII 148
Hinde. See Nicholson and Hinde.
Holmes. 1860. Post-Pleiocene Foss. South Carolina 154
See also Tuomey and Holmes.
Horn. See Gabb and Horn.

Page.
James, Joseph F. 1888. On Monticulipora: Amer. Geol., I 145
1893–1896. Manual Pal. Cincinnati Group: Jour. Cin. Soc. Nat. Hist., XV–XVIII 147
James, U. P. 1875. Catal. Lower Sil. Foss 133
1878–1883. Paleontologist, Nos. 1–7 136
1883. Foss. Cin. Group: Jour. Cin. Soc. Nat. Hist., VI 141
1884. Descriptions three new sp. Foss.: Jour. Cin. Soc. Nat. Hist., VII 141
1884. Descriptions four new sp. Foss.: Jour. Cin. Soc. Nat. Hist., VII 141
James and James. 1887–88. Monticuliporoid Corals Cincinnati Group: Jour. Cin. Soc. Nat. Hist., X, XI 144
Keyes. 1888. Fauna of Lower Coal Measures: Proc. Acad. Nat. Sci. Phila 145
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Lea. 1833. Contrib. to Geol 151
Lonsdale. 1845. Six species of Polyparia: Quar. Jour. Geol. Soc. London, I 152
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Meek. 1871. New Species Invert. Foss.: Proc. Acad. Nat. Sci. Phila 131
1871. New Western Pal. Foss.: Proc. Acad. Nat. Sci. Phila 131
1872. Pal. Rep.: Hayden's Sixth Ann. Rep. U. S. Geol. Sur 131
1872. Pal. Eastern Nebr.: Hayden's Final Rep., Part II 131
1873. Invert. Sil. Dev. Foss.: Pal. Ohio, I 132
1875. Invert. Foss.: Pal. Ohio, II 133
Meek and Worthen. 1865. New Sp. Crinoidea, etc.: Proc. Acad. Nat. Sci. Phila 130
1868. Pal.: Geol. Sur. Illinois, III 131
1870. Synocladia: Proc. Acad. Nat. Sci. Phila 131
1875. Desc. Invert.: Geol. Sur. Illinois, VI 134
Mickleborough and Wetherby. 1878. List of Lower Sil. Foss. Cincinnati Group.: Jour. Cin. Soc. Nat. Hist., I 136
Miller. 1874. Stenopora fibrosa: Cincinnati Quar. Jour. Sci., I 132
1875. New Species Foss.: Cincinnati Quar. Jour. Sci., II 134
1877. Amer. Pal. Foss 135
1878. New Genus and Eleven New Sp. Foss.: Jour. Cin. Soc. Nat. Hist., I 136
1880. New Species Sil. Foss.: Jour. Cin. Soc. Nat. Hist., III 138
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1882. Review of Nicholson's Genus Monticulipora: Jour. Cin. Soc. Nat. Hist., V 139
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1889. North American Geol. Pal 145
Miller and Dyer. 1878. Contrib. Pal.: Jour. Cin. Soc. Nat. Hist., I 136
1878. Contrib. Pal., No. 2 136
Milne-Edwards. 1860. Hist. Nat. des Corall., III 129
Milne-Edwards and Haime. 1851. Mon. Polyp. Foss. Terr. Pal.: Arch. du Mus., V 127
1854. Mon. British Foss. Corals 127
Morton. 1829. Obs. on Geol. and Organic Remains Second., Tert., Alluv. Formations 151
1830. Organic Remains Ferruginous Sand Formation 151

			Page.
Morton.	1834.	Organic Remains Cretaceous Group	151
Nettleroth.	1889.	Kentucky Foss. Shells	145
Nicholson.	1874.	Researches on Pal. Ontario: Canad. Jour. (2), XIV	132
	1874.	New Dev. Polyz.: Ann. Mag. Nat. Hist. (4), XIII	132
	1874.	New Dev. Foss.: Geol. Mag. (2), I	133
	1874.	Descriptions of Chætetes: Quar. Jour. Geol. Soc. London, XXX	133
	1874.	Rep. Pal. Province Ontario	133
	1875.	Rep. Pal. Province Ontario	134
	1875.	Species of Hippothoa and Alecto: Ann. Mag. Nat. Hist. (4), XV	134
	1875.	New Species Polyz.: Ann. Mag. Nat. Hist. (4), XV	134
	1875.	New Species and Genus Polyz.: Geol. Mag. (2), II	134
	1875.	Massive forms of Chætetes: Geol. Mag. (2), II	134
	1875.	Sil. and Dev. Corals: Pal. Ohio, II	134
	1875.	Descriptions Polyz. Sil. Form.: Pal. Ohio, II	135
	1876.	Growth and Increase of Paleozoic Corals: Trans. Roy. Soc. Edinburgh, XXVII	135
	1876.	Pal. Corals of Ohio: Ann. Mag. Nat. Hist. (4), XVIII	135
	1879.	Pal. Tabulate Corals	137
	1881.	Genus Monticulipora	139
Nicholson and Etheridge, Jun.	1877.	Ascodictyon: Ann. Mag. Nat. Hist. (4), XIX	136
Nicholson and Foord.	1884.	On Fistulipora: Ann. Mag. Nat. Hist. (5), XVI	185
Nicholson and Hinde.	1874.	Foss. Clinton, Niagara and Guelph: Canad. Jour. (2), XIV	133
Nickles.	1890.	Studies on Monticulipora: Amer. Geol., VI	146
Orbigny.	1842.	Voyage dans l'Amérique Méridionale, III	125
	1850.	Prodr. Pal., I	126
Owen.	1842.	Human Footprints in Solid Limestone: Amer. Jour. Sci. Arts, XLIII	125
Prout.	1858.	New Bryoz. from Texas and New Mexico: Trans. St. Louis Acad. Sci., I	128
	1858–60.	Four Series Descriptions Bryoz.: Trans. St. Louis Acad. Sci., I	128, 129
	1866.	New Bryoz.: Trans. St. Louis Acad. Sci., II	130
	1866.	Pal. Polyz.: Geol. Sur. Illinois, II	130
Quenstedt.	1881.	Roehren- und Sternkorallen	139
Ringueberg.	1884.	Niagara Foss.: Proc. Acad. Nat. Sci. Phila	141
	1886.	Niagara Foss.: Bull. Buffalo Soc. Nat. Sci., V	142
Roemer.	1860.	Silur. Fauna West Tennessee	129
Rogers.	1900.	New Bryoz. from Coal Measures of Kansas and Missouri: Kans. Univ. Quar., (A) IX	150
Rolle.	1851.	On Reptaria: Neues Jahrbuch	127
Rominger.	1866.	Obs. on Chætetes: Proc. Acad. Nat. Sci. Phila	130
	1887.	Description of a new Bryozoa: Proc. Acad. Nat. Sci. Phila.	144
	1890.	Studies on Monticulipora: Amer. Geol., VI	146
	1892.	Occurrence of Chætetes: Amer. Geol., X	147
Safford.	1869.	Geol. Tennessee	131
Shumard.	1854.	Carb. Cret. Foss.: Marcy's U. S. Explor. Red River, Louisiana	127
Simpson.	1895.	Genera of Fenestellidæ: Thirteenth Ann. Rep. State Geol. New York for 1893; Forty-seventh Ann. Rep. New York State Museum	148

Page.

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Swallow. 1858. Permian Foss.: Trans. St. Louis Acad. Sci., I 128
Troost. 1840. Fifth Geol. Rep. Tennessee 125
Tuomey and Holmes. 1857. Pleiocene Fossils of South Carolina 153
Ulrich. 1878. New Species Foss.: Jour. Cin. Soc. Nat. Hist., I 136
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1880. Catal. Foss. Cincinnati Group 138
1882–84. Amer. Pal. Bryoz.: Jour. Cin. Soc. Nat. Hist., V–VII .. 139, 159
1886. New Sil. and Dev. Foss.: Contrib. Amer. Pal., I 143
1886. Lower Sil. Bryoz.: Fourteenth Ann. Rep. Geol. Nat. Hist. Sur. Minnesota 143
1888. Bryoz. Waverly Group: Bull. Denison Univ., IV 145
1888. On Sceptropora: Amer. Geol., I 145
1889. Contrib. Micro-Pal. Cambro-Sil., Part II 146
1890. New Sil. Bryoz.: Jour. Cin. Soc. Nat. Hist., XII 146
1890. Pal. Bryoz.: Geol. Sur. Illinois, VIII 146
1893. Lower Sil. Bryoz. Minn.: Geol. Minnesota, III 147
1896. Bryozoa: Zittel's Textb. Pal. (Engl. ed.) 149
Vanuxem. 1842. Geol. Surv. Third Geol. District 125
Walcott. 1879. Foss. Utica Slate: Trans. Albany Inst., X, 1883 137
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White. 1874. Prel. Rep. Invert. Fossils 133
1876. New Foss. from Iowa: Proc. Acad. Nat. Sci. Phila 135
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1897. Foss. Galena-Trenton and Black River: Pal. Foss. III ... 149
1898. Hamilton Foss.: Contrib. Canad. Pal., I 150
Whitfield. 1878. New Species Foss.: Ann. Rep. Wisconsin Geol. Sur 137
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1882. Pal.: Geol. Wisconsin, IV 140
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LIST OF PAPERS TREATING OF BRYOZOA.

The following list includes all papers which treat exclusively of bryozoa. Works of which the bryozoa form an incidental part have been included when the bryozoa portion was deemed important. Doubtless a considerable number of papers have been overlooked, but it is hoped that the omissions will not prove serious.

For easy reference the authors' names have been arranged alphabetically, and their papers have been listed in chronological order. The dates given may not always be exactly correct, but they are probably seldom far astray. In cases where the actual date of publication is known to be considerably different from the title-page date the former is used. Titles of serials have usually been written in full in this list, but abbreviated in the second list.

In the second list the foregoing papers have been rearranged under several heads, so as to bring together those answering the needs of special workers. It has not been deemed practicable to classify except under large heads. Some errors in classification will no doubt be detected. Occasionally the titles given to their papers by authors are unintentionally misleading. A large number of papers I have been unable to examine, and many references are given on the authority of other writers.

Under the several heads the chronologic order has been adopted, as such an arrangement is very suggestive, both of the progress of knowledge and the point of view of the several authors. Under each year the authors' names are arranged alphabetically. Some works which I have not examined are included under "General;" an examination of these might show however that they would be more appropriately placed under other heads.

It is hoped that the general usefulness of the list will atone for unavoidable shortcomings. The amount of literature devoted to one comparatively small class of the animal kingdom will no doubt be surprising.

For the opportunity of consulting the libraries of Washington, District of Columbia, without which the list could not have been compiled, I have to thank the Hon. Charles D. Walcott, Director of the United States Geological Survey. Some members of the staff of the United States National Museum, and especially Mr. Charles Schuchert, have given valued help.

JOHN M. NICKLES.

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1857. On a new species of Bugula. (Quarterly Journal of Microscopical Science, V, 1857, pp. 174–175, pl. xvii.)

1857. A catalogue of the Zoophytes of Northumberland and Durham. (Transactions of the Tyneside Naturalists' Field Club, III, 1858 [1857], pp. 93–162, pls. iii–x; Bryozoa on pls. vii, viii, x.)

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1843. On Plumatella repens. (Report of the Thirteenth Meeting of the British Association for the Advancement of Science, 1843 [London, 1844], part 2, pp. 74–76.) (L'Institut, XI, 1843, p. 454.)

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THE FOREGOING LIST CLASSIFIED.

HEADS OF CLASSIFICATION.

A. Bibliographic—including annual reviews and lists of papers dealing with Bryozoa.
B. General—including works which treat of the Bryozoa as a whole or are too general in scope to come under more particular heads.
C. Biological—including papers concerned mainly with anatomy, morphology, embryology, development, etc.
D. Fresh-water—including papers which treat of fresh-water Bryozoa biologically and systematically.
E. Marine—including papers which treat of living marine Bryozoa mainly from a systematic standpoint.
F. Tertiary and Quaternary.
G. Mesozoic.
H. Paleozoic.

A. BIBLIOGRAPHIC.

INCLUDING ANNUAL REVIEWS AND LISTS OF PAPERS DEALING WITH BRYOZOA.

(*a*) ANNUAL REVIEWS.

[The annual reviews are generally accompanied by a list of the publications that have appeared during the period covered by the review.]

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Zoologischer Anzeiger, herausgegeben von Prof. J. Victor Carus, Leipzig. Vols. 1–18, 1878–1895. Current numbers contain titles of publications relating to Bryozoa; consult index of each volume under I. Literature. This feature of the "Anzeiger" continued as—

Bibliographia Zoologica (diario "Zoologischer Anzeiger" adnexa), adjuvante concilio bibliographico quod Turici præside H. H. Field institutum est, edidit J. Victor Carus. Vols. I– , 1896– . Consult index of each volume.

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This is the "card system" applied to a current record of publications relating to zoology and several kindred branches. The titles are classified and numbered according to the Dewey decimal classification. Recent Bryozoa are 594.7; fossil Bryozoa 564.7.

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nato post mille saecula praecludetur occasio aliquid adjiciendi."

—Seneca.

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[Bulletin 173.]

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The map sheets represent a great variety of topographic features, and with the aid of descriptive text they can be used to illustrate topographic forms. This has led to the projection of an educational series of topographic folios, for use wherever geography is taught in high schools, academies, and colleges. Of this series the first two folios have been issued, viz:

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2. Physiographic types, by Henry Gannett, 1900, folio, consisting of the following sheets and 11 pages of descriptive text: Norfolk (Va.-N. C.), a coast swamp; Marshall (Mo.), a graded river; Lexington (Nebr.), an overloaded stream; Harrisburg (Pa.), Appalachian ridges; Poteau Mountain (Ark.-Ind. T.), Ozark ridges; Marshall (Ark.), Ozark Plateau; West Denver (Colo.), hogbacks; Mount Taylor (N. Mex.), volcanic peaks, plateaus, and necks; Cucamonga (Cal.), alluvial cones; Crater Lake special (Oreg.), a crater.

GEOLOGIC ATLAS OF THE UNITED STATES.

The Geologic Atlas of the United States is the final form of publication of the topographic and geologic maps. The atlas is issued in parts, or folios, progressively as the surveys are extended, and is designed ultimately to cover the entire country.

Under the plan adopted the entire area of the country is divided into small rectangular districts (designated *quadrangles*), bounded by certain meridians and parallels. The unit of survey is also the unit of publication, and the maps and descriptions of each rectangular district are issued as a folio of the Geologic Atlas.

Each folio contains topographic, geologic, economic, and structural maps, together with textual descriptions and explanations, and is designated by the name of a principal town or of a prominent natural feature within the district.

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23	Nomini	Maryland. Virginia	76° 30′-77°	38°-38° 30′	938	25
24	Three Forks	Montana	111°-112°	45°-46°	3,354	50
25	Loudon	Tennessee	84°-84° 30′	35° 30′-36°	969	25
26	Pocahontas	Virginia West Va.	81°-81° 30′	37°-37° 30′	951	25
27	Morristown	Tennessee	83°-83° 30′		963	25
28	Piedmont	Maryland. West Va.	79°-79° 30′	39°-39° 30′	925	25
29	Nevada City:					
	Nevada City.	California.	121° 00′ 25″-121° 03′ 45″	39° 13′ 50″-39° 17′ 16″	11.65	50
	Grass Valley.		121° 01′ 35″-121° 05′ 04″	39° 10′ 22″-39° 13′ 50″	12.09	
	Banner Hill		120° 57′ 05″-121° 00′ 25″	39° 13′ 50″-39° 17′ 16″	11.65	
30	Yellowstone National Park: Gallatin Canyon Shoshone Lake	Wyoming.	110°-111°	44°-45°	3,412	75
31	Pyramid Peak	California.	120°-120° 30′	38° 30′-39°	932	25
32	Franklin	Virginia West Va.	79°-79° 30′	38° 30′-39°	932	25
33	Briceville	Tennessee	84°-84° 30′	36°-36° 30′	963	25
34	Buckhannon	West Va.	80°-80° 30′	38° 30′-39°	932	25
35	Gadsden	Alabama	86°-86° 30′	34°-34° 30′	986	25
36	Pueblo	Colorado	104° 30′-105°	38°-38° 30′	938	50
37	Downieville	California.	120° 30′-121°	39° 30′-40°	919	25
38	Butte Special	Montana	112° 29′ 30″-112° 36′ 42″	45° 59′ 28″-46° 02′ 54″	22.80	50
39	Truckee	California.	120°-120° 30′	39°-39° 30′	925	25
40	Wartburg	Tennessee	84° 30′-85°	36°-36° 30′	963	25
41	Sonora	California.	120°-120° 30′	37° 30′-38°	944	25
42	Nueces	Texas	100°-100° 30′	29° 30′-30°	1,035	25
43	Bidwell Bar	California.	121°-121° 30′	39° 30′-40°	918	25
44	Tazewell	Virginia West Va.	81° 30′-82°	37°-37° 30′	950	25
45	Boise	Idaho	116°-116° 30′	43° 30′-44°	864	25
46	Richmond	Kentucky	84°-84° 30′	37° 30′-38°	944	25
47	London	Kentucky	84°-84° 30′	37°-37° 30′	950	25
48	Tenmile District Special.	Colorado	106° 8′-106° 16′	39° 22′ 30″-39° 30′ 30″	55	25
49	Roseburg	Oregon	123°-123° 30′	43°-43° 30′	871	25
50	Holyoke	Mass Conn	72° 30′-73°	42°-42° 30′	885	50
51	Big Trees	California	120°-120° 30′	38°-38° 30′	938	25
52	Absaroka: Crandall Ishawooa	Wyoming.	109° 30′-110°	44°-44° 30′	1,706	25
53	Standingstone	Tennessee	85°-85° 30′	36°-36° 30′	963	25

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55	Fort Benton	Montana	110°-111°	47°-48°	3, 273	25
56	Little Belt Mts	Montana	110°-111°	46°-47°	3, 295	25
57	Telluride	Colorado	107° 45′-108°	37° 45′-38°	236	25
58	Elmoro	Colorado	104°-104° 30′	37°-37° 30′	950	25
59	Bristol	Virginia Tennessee	82°-82° 30′	36° 30′-37°	957	25
62	Menominee Special	Michigan	87° 44′-88° 09′	45° 44′-45° 55′	254	25

STATISTICAL PAPERS.

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Mineral Resources of the United States, 1883 and 1884, by Albert Williams, jr. 1885. 8°. xiv, 1016 pp. Price 60 cents.

Mineral Resources of the United States, 1885. Division of Mining Statistics and Technology. 1886. 8°. vii, 576 pp. Price 40 cents.

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On March 2, 1895, the following provision was included in an act of Congress:

"*Provided*, That hereafter the report of the mineral resources of the United States shall be issued as a part of the report of the Director of the Geological Survey."

In compliance with this legislation the following reports have been published:

Mineral Resources of the United States, 1894, David T. Day, Chief of Division. 1895. 8°. xv, 646 pp., 23 pl.; xix, 735 pp., 6 pl. Being Parts III and IV of the Sixteenth Annual Report.

Mineral Resources of the United States, 1895, David T. Day, Chief of Division. 1896. 8°. xxiii, 542 pp., 8 pl. and maps; iii, 543-1058 pp., 9-13 pl. Being Part III (in 2 vols.) of the Seventeenth Annual Report.

Mineral Resources of the United States, 1896, David T. Day, Chief of Division. 1897. 8°. xii, 642 pp., 1 pl.; 643-1400 pp. Being Part V (in 2 vols.) of the Eighteenth Annual Report.

Mineral Resources of the United States, 1897, David T. Day, Chief of Division. 1898. 8°. viii, 651 pp., 11 pl.; viii, 706 pp. Being Part VI (in 2 vols.) of the Nineteenth Annual Report.

Mineral Resources of the United States, 1898, David T. Day, Chief of Division. 1899. 8°. viii, 616 pp.; ix, 804 pp., 1 pl. Being Part VI (in 2 vols.) of the Twentieth Annual Report.

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